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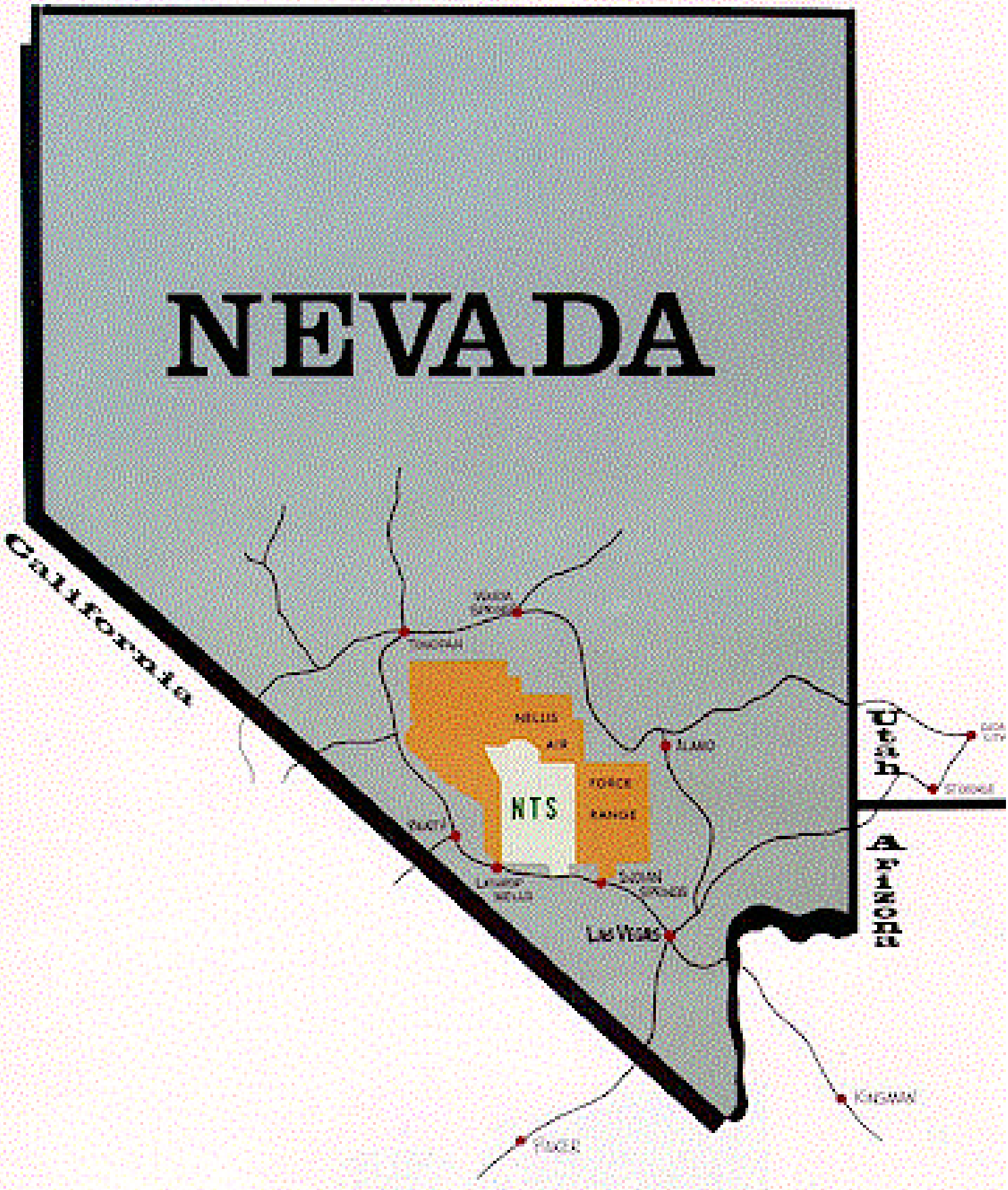

LOS ALAMOS NATIONAL LABORATORY

OPERATIONS MANUAL
For
THE NEVADA TEST SITE

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OPERATIONS MANUAL

FOR THE

NEVADA TEST SITE

PREFACE

Since the formation of the Los Alamos National Laboratory (LANL), each Director has emphasized that health and safety are integral to the conduct of all work performed by Laboratory employees. This philosophy remains today with an added emphasis on protection of our environment and the public. The Director's policies, along with the Complex-wide system of Integrated Safety Management (ISM), applies to all work performed by LANL employees at the Nevada Test Site (NTS). In addition, specific Department of Energy/Nevada (DOE/NV) Orders unique to operations at the NTS are adhered to and folded into the ISM system.

Work performed at the NTS can consist of potentially hazardous elements that are planned for and executed through the ISM process. This methodology produces results consistent with our mission with minimum risk to employees, the public and the environment. It is always emphasized no task or schedule deadline can take priority over the safety of the workers and the public. In addition, protection of the environment and waste minimization are always integrated into any work process.

There are terms used in this manual, like "Test Office", "Field Test" and "Permanent Party," that should be explained up front. The Test Office is located at the top of the stairs in CP-1, but it is also a group of people that administer and manage the Defense Programs Testing Process for Los Alamos at the Nevada Test Site (and other places as necessary). Field Test refers to the idea that testing is going on outside the Laboratory (and this is generally under the auspices of the Test Office at the Nevada Test Site). The Permanent Party is that group of people who live in Nevada and help the Test Office field programs (there is also a permanent party that supports the Yucca Mountain Project in Nevada). For the purpose of this document the term "contractor" refers to organizations contracted directly to Los Alamos and not to the NTS Management & Operations contractor (BN contracted to the DOE/NV).

Field test operations at the NTS are performed by employees who routinely work long hours under extreme conditions. This type of activity requires a conscious effort on the part of each individual to maintain an awareness of safe work practices and to perform safely as a member of a large team to meet program goals.

This manual addresses the safety, health, operational and environmental issues pertaining to all LANL-directed activities and field test operations at the NTS.

This manual provides the needed guidance for all LANL employees/visitors to the NTS. Because of the multi-user nature of the NTS, where activities are conducted by many different organizations, visitor control is a necessary element to ensure that employees can conduct their work in a safe environment and be provided with the resources needed to meet program goals.

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ACRONYM LIST

ACRONYM	DEFINITION	ACRONYM	DEFINITION
AA	Audits and Assessments	**NASA**	National Aeronautics and Space Agency
ACIS	Automated Chemical Inventory System	**NEC**	National Electric Code (latest version)
AGEX	Above Ground Experiment	**NEPA**	National Environmental Protection Act
AHJ	Authority Having Jurisdiction	**NESS**	Nuclear Explosive Safety Study
ALARA	As Low As Reasonably Achievable	**NIH**	National Institute of Health
ANSI	American National Standards Institute	**NTS**	Nevada Test Site
AR	Administrative Requirement	**OIC**	Office of Institutional Coordination
BEP	Building Emergency Plan	**ORR**	Operational Readiness Review
BN	Bechtel Nevada	**OSHA**	Occupational Safety and Health Administration
BUS	Business Operations	**OSR**	Operational Safety Requirements
CAM	Continuous Air Monitor	**OUO**	Official Use Only
CFR	Code of Federal Regulations	**OWG**	Operations Working Group
CPR	Cardiopulmonary Resuscitation	**P**	P Division
CST	Chemical Science and Technology Division	**PAAA**	Price-Anderson Amendment Act
DAF	Device Assembly Facility	**PAP**	Personnel Assurance Program
DLSO	Division Laser Safety Officer	**PI**	Principal Investigator
DMT	Division Management Team	**POC**	Point of Contact
DOD	Department of Defense	**PPE**	Personal Protective Equipment
DOE	Department of Energy	**QA**	Quality Assurance
DOE/AL	DOE/Albuquerque Operations	**RCM**	Radiological Control Manager
DOE/NV	DOE/Nevada Operations	**RCRA**	Resource Conservation and Recovery Act
DX	Dynamic Experimentation Division	**RM**	Resident Manager
EDS	Employee Development System	**RPP**	Radiological Protection Program
EES	Earth and Environmental Sciences Division	**RWI**	Radiological Worker I
EIRC	Explosives Instrument Review Committee	**RWII**	Radiological Worker II
EIS	Environmental Impact Statement	**RWP**	Radiological Work Permit
EOC	Emergency Operations Center	**SAA**	Satellite Accumulation area
ERC	Explosives Review Committee	**SAR**	Safety Analysis Report
ES&H	Environment, Safety, and Health Division	**SCE**	Subcritical Experiment
ESA	Engineering Sciences and Applications Div.	**SEWP**	Special Electrical Work Permit
FMD	Facility Manager Designee	**SF**	Standard Form
FSSRP	Firing Systems Safety Review Panel	**SMD**	Site Management Division
GET	General Employee Training	**SME**	Subject Matter Expert
GERT	General Employee Radiation Training	**SNL**	Sandia National Laboratory
GSA	General Services Administration	**SNM**	Special Nuclear Materials
HA	Hazard Analysis	**SOP**	Standard Operating Procedure
HE	High Explosives	**SWP**	Special Work Permit
ISM	Integrated Safety Management	**Swp**	Safe Work Practices
ISMD	Integrated Safety Management Description	**T&F**	Timing and Firing
JTO	Joint Test Organization	**TD**	Test Director
LANL	Los Alamos National Laboratory	**TDY**	Temporary Duty
LIG	Laboratory Implementation Guidance	**TGD**	Test Group Director
LIR	Laboratory Implementation Requirement	**TLD**	Thermoluminescent Dosimetry
LLNL	Lawrence Livermore National Laboratory	**TO**	Test Office
LPR	Laboratory Performance Requirement	**TSR**	Technical Safety Requirement
LSO	Laser Safety Officer	**UC**	University of California
LSOP	Laser Safety Operating Procedure	**UGT**	Underground Nuclear Testing
MC&A	Material Control & Accountability	**USQ**	Unresolved Safety Question
MOA	Memorandum of Agreement	**WFO**	Work for Others
MOU	Memorandum of Understanding	**WSI**	Wackenhut Services, Inc.
MSDS	Material Safety Data Sheet	**WSS**	Work Smart Standards
REOP	Real Estate Operations Permit		

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SECTION I
INTRODUCTION

POLICY

Safety is first at LANL.

LANL will never compromise safety for operational needs.

LANL is committed to achieving excellence in environment, safety and health performance. In meeting the moral imperative not to injure people or the environment while accomplishing our mission, and the business imperative to meet the environment, safety, and health requirements of the contract between the University of California and the Department of Energy, the employees, contractors and guests of the Los Alamos National Laboratory will strive to have:

- **ZERO injuries and illnesses on the job**
- **ZERO injuries and illnesses off the job**
- **ZERO environmental incidents**
- **ZERO ethics incidents**
- **ZERO people mistreatment incidents**
- **ZERO safeguards and security violations**

The above **ES&H** Policy, is the preamble to the Director's official policy, Integrated Safety Management (ISM), LA-UR-2837, Rev. 3. ISM is a system for performing work safely. Safety management is a normal and natural element of the performance of work and not a workplace addition. (See Section 1 Appendix, Page IA-5.) ISM is the way we meet the moral commitment not to injure people or the environment along with meeting the safety requirements of the UC-DOE Contract for management and operation of the Los Alamos National Laboratory.

*All workers at LANL, whether they are employees, subcontractors, visitors, or students, have the authority and responsibility to **Stop Work** after identifying a potentially thazardous condition in the work place.*

The Laboratory and the Department of Energy have agreed to the following guiding principles to provide overall direction and guidance for instituting Integrated Safety Management:

LANL's first guiding principle: Management Commitment and Worker Involvement.
ISM is an employee-based safety management system. Managers are visibly committed to the implementation and sustained execution of all elements of the system, and workers exhibit continual involvement in the system by using ISM elements in their work.

1) *Line Management Safety and Environmental Responsibility*

   Line management is responsible for the protection of workers, the public, and the environment. Every member of the workforce shares this responsibility, which extends in an unbroken chain from external sponsors through the Director to the workers. All University of California and subcontractor employees and managers, supervising or performing work, and all visitors are in a safety-responsible line-management chain. Throughout this line management chain, safety is integral to decisions relating to the performance of work, including resource allocation, planning, scheduling, and coordination.

2) *Clear Roles*

   The Laboratory has established and maintains clear and unambiguous lines of authority, responsibility, and accountability at all organizational levels. ES&H roles and responsibilities are communicated so that everyone understands their individual and organizational safety roles.

3) *Competence Commensurate with Responsibilities*

   Since the formation of the Laboratory, each Director has emphasized that health and safety are integral to the conduct of all work performed by Laboratory employees. This philosophy remains today with an added emphasis on protection of our environment.

4) *Balanced Priorities*

   Management effectively allocates resources to address ES&H, programmatic, and operational considerations. No work will be

performed unless it can be performed safely. Whenever activities are planned and performed, adequate protection of workers, the public, and the environment is a priority. Work planning and resource allocation ensure through balanced priorities that the safety of any work is adequate, value-added, and reasonable. ES&H is appropriately balanced relative to possible competing or conflicting operating needs.

5) *Identified Safety Standards and Requirements*

Before work is performed, the associated hazards are evaluated and agreed upon ES&H standards, requirements, and/or controls, i.e., expectations are established, which when properly implemented, provide adequate assurance that the workers, the public, and the environment are protected from adverse consequences.

6) *Work-Tailored Hazard Controls*

Administrative and engineered controls, and other expectations to prevent and mitigate hazards are tailored to the work being performed and associated hazards. Emphasis is on designing the work and/or controls to reduce or eliminate the hazards and to prevent accidents and unplanned releases and exposures.

7) *Authorized Operation*

The conditions and agreements to be satisfied for operations to be initiated and conducted are clearly established and agreed upon. Most operations are authorized under the Prime Management and Operations Contract between the University of California (UC) and the DOE. Some operations are authorized under activity- and facility-specific authorization agreements between the Laboratory, DOE, and/or prime contractor.

The Director's policies, along with **APPLICABLE** LPRs, LIRs and LIGs, apply to LANL work at the Nevada Test Site. Work conducted by Los Alamos employees at the NTS is consistent with the intent of the LANL LPRs, LIRs and LIGs. These Institutional

documents were written to implement the specific set of Work Smart Standards (WSS) contained in the LANL UC Contract with DOE/AL for work at Los Alamos. For work at the NTS, the Tri-Labs (LANL/LLNL/SNL) have developed an NTS Interface document, TDO/NTS: U-99-023, which is consistent with the LANL ISM system. Additionally, the unique set of NTS work and the requirements governing that work will be attached to the corporate LANL ISMD.

The nature of work performed by Laboratory employees and their contractors at the NTS and in Los Alamos involves a wide variety of materials; e.g., hazardous, explosive, and, radioactive. DX Division has developed comprehensive Operations Manuals; one for Los Alamos operations, and this one for NTS operations. These manuals supplement the Director's policies.

Along with the LANL policies that guide employee activities at the NTS and other field sites are specific laws, codes and DOE Orders that delineate both program and safety requirements that must be met. The Nevada Office of the Department of Energy has documented its systems and mechanisms for integration of safety management through the following documents: NV M 111X, Functions, Responsibilities, and Authorities Manual; NV P 450.3X, DOE/NV Work Smart Standards; NV M 412X, DOE/NV Real Estate/Operations Permit; NV M 450.X, Authorizations and Activity Agreements for Facilities and Operations; NV M 220.X, DOE/NV Oversight Management Systems; NV O 230.X-DOE/NV, Lessons Learned; NV M 252/1-1A, DOE/NV Directives System Manual. These can be found at http://www/nv/doe/gov/news&pubs/menu page.htm.

Radiological work shall be conducted such that radiation doses resulting from the work are as low as reasonably achievable (ALARA). The ALARA principle, set forth in the Nevada Test Site Radiation Protection Program (See Reference 5.), applies to all LANL employees, subcontractors, visitors, students and others representing LANL at the NTS.

Managers of LANL NTS organizations are responsible for assuring that effective waste minimization and pollution prevention practices and policies are integrated into general operations.

SECTION I
INTRODUCTION

SCOPE

This manual provides overall guidance to LANL workers at the NTS whether they are infrequent travelers or permanent party individuals. It provides not only environmental and safety guidance but covers other "nice-to-know" information about the NTS and how to obtain resources such as housing, feeding, and transportation. This manual does not replace special topics covered in greater detail, i.e., Subcritical Evaluation Safety Studies, On-Site Transportation Standards, Containment Studies, Hazard Analysis, etc. However, it does provide a "roadmap" to the necessary documentation.

RESPONSIBILITIES

Test Group Director (TGD)

The TGD is appointed by and reports to the DX Division Director and serves as the Team Leader for the DX Test Office providing leadership to the LANL Test Group. The TGD is responsible for coordinating environmental and safety considerations with the DOE/NV Office and other agencies that may have jurisdiction at locations where LANL field test operations are conducted. **In cases of negligence or violation of safety procedures, the TGD has the authority to take appropriate disciplinary actions against the violators.** The TGD typically serves as Test Director (TD) for specific Subcritical Experiment (SCE) operations. The TGD may delegate administrative/technical tasks to a TD or the Resident Manager (RM).

Project Leader for NTS

The Project Leader for NTS is the link between the SCE Program requirements and Los Alamos/NTS operations organizations. The Project Leader is responsible for funding, overall scheduling, resource allocation, deliverables and assisting the AGEX/NTS Program Manager in the SCE program.

Test Director (TD)

The TD represents LANL in all operations related to SCE activities and other test operations at the NTS. By delegated directive, the TD provides technical direction to BN and WSI, at designated facilities. The TD represents LANL in all areas relative to specific SCE activities, interacting with other external agencies, e.g., LLNL, DOE, SNL, etc. The TD is certified through a DOE-sponsored certification program.

Diagnostic Coordinator

The Diagnostic Coordinator, selected by the Program Manager (see Appendix , Page A-1) for AGEX/NTS for a specific SCE, coordinates program requirements with the diagnostics groups, provides scheduling input, ensures that diagnostic measurements reflect program needs, assists with resource allocation, provides reporting and conducts diagnostics data review meetings. The Diagnostic Coordinator works closely with the TD and Program Manager to ensure that all program/data objectives are met.

Resident Manager (RM)

The RM is a Permanent Party member of the NTS Test Office and serves as the LANL contact for day-to-day operations. The RM carries out duties delegated by the TGD and is also specifically responsible for: liaison with LANL, DOE/NV, and other agencies; ES&H activities for LANL personnel and operations at the NTS; LANL compliance with NTS SOPs; Emergency Management; Compliance with Conduct of Operations policies; appoints Security Officer for Los Alamos in Nevada; serving as LANL Representative to the JTO; oversight of LANL Document Control at the NTS; coordination of tours and visits; serving as point of contact for LANL employees at the NTS when no TD is assigned—unless superceded by facility requirements, i.e., U1a, Device Assembly Facility (DAF), etc.; coordination and processing of Occurrence Reports (U1a Occurrence Reporting is coordinated by the U1a Complex Manager); coordination of assessments/audits at the NTS where applicable; publishing LANL/NTS On-Call lists and serving as an On-Call person; Facilities/Real Estate usage; LANL/NTS infrastructure support coordination; and recommending

disciplinary action in cases of negligence or violation of safety procedures. The RM is appointed as a representative to the site-wide ALARA Committee and acts as a member. He serves as the LANL senior site executive for the NTS radiation protection program.

Radiation Control Manager

The LANL/NTS Radiological Control Manager has responsibility for the LANL radiological protection program at the NTS as defined in the NV/YMP Radiological Control Manual and the NTS Radiation Protection Program. The LANL/NTS Radiological Control Manager is a member of the Radiological Control Managers Council, which determines and implements radiological protection policies for the NTS. The LANL/NTS Radiological Control Manager generates and approves all Radiological Work Permits (RWPs) for LANL activities or projects at the NTS, and reviews and concurs with RWPs generated by other organizations for activities or projects involving LANL employees.

Security Officer

The security officer is responsible for developing and maintaining a security program for LANL at the NTS. This includes writing security plans, ordering security stations, and acting as a point of contact and liaison with all the associated security interests in Nevada and Los Alamos. DX-4 Operations provides the expertise for this including staff for key control, badging and document control. The Resident Manager appoints the Security Officer in a letter to the Safeguards and Security Division (SSD) of the DOE Nevada Operations Office .

DAF Manager

This is a two-year appointment that is alternated between LANL and LLNL. The DAF Manager is responsible for compliance with SAR requirements that define DAF operations and ensuring that an approved, specific nuclear explosive safety evaluation panel report is in place prior to start of any operation involving Special Nuclear Materials (SNM), in coordination with the Test Director.

Line Managers & Supervisors

Supervisors/Line Managers are responsible for informing employees (permanent, temporary, or TDY) of the requirements and responsibilities specified in this document. Supervisors are also responsible for notifying the Test Office (702-295-4400) of any unusual safety hazards associated with planned work.

Team Leaders

ESH-12 Radiation Protection Services, ESA-WMM Weapons Materials & Manufacturing , DX-4 Operations, DX-4 Field Engineering and DX-7 Field Test Command, Control and Communications have Team Leaders that are permanently assigned to the NTS. Besides the normal responsibilities assigned to the Team Leader, he or she may be responsible for some activities that would normally be coordinated at the Group level, such as, safety training, security planning, and making provisions for specialized PPE.

Workers

LANL employees are responsible for observing applicable ES&H procedures, for using prescribed protective equipment, for promptly reporting accidents and injuries, and for participating in required personal monitoring programs, e.g., hearing conservation, radiological, medical evaluation for respirator use. At the NTS, employees are responsible to the Los Alamos Test Office for compliance with LANL ES&H policies and procedures, as well as the policies of the facility or location to which they are assigned. LANL contractor employees are subject to the same policies that Laboratory employees must follow.

FIELD TEST ORGANIZATIONS

In the Field Test Organization, certain LANL groups have been assigned ES&H support responsibilities. Other groups are delegated ES&H responsibility during defined periods of time for particular operations and locations. Listed below are the programmatic and ES&H responsibilities for Key groups at the

NTS. The Appendix at the end of this section shows the structure of the LANL Permanent Party, Subcritical Events, the U1a Complex, and the Device Assembly Facility.

The Test Office is responsible for:

- Publishing the Los Alamos On-Call Listing.
- Providing Occurrence (excluding those occurring at the U1a Complex) and Price-Anderson Amendment Act (PAAA) reporting coordination.
- Project Real Estate Operations Permit (REOP). (See Reference 4.)
- Accepting and releasing safety coordination orders from DOE for any particular NTS operation.
- Reviewing and revising general safety regulations (SWPs, SOPs, this manual, etc.) for Field Test Operations.
- Assigning a JTO representative.

DX-4 Field Operations and Experiment Support Group is responsible for several areas of NTS activities

DX-4 Operations Team

- Provides Security Program and Security Officer for LANL in Nevada.
- Provides input and guidance to JTO Travel for:
  - Housing.
  - Making reservations such as hotel, airline, rental auto, etc.
  - Issuing GSA/DOE-owned vehicles for on-site use.
  - Issuing NTS dosimeters.

- Provides Manager for Joint Laboratories Material Control and Accountability (MC&A) Program.
- Prepares nontechnical test operations plans and checklists.
- Prepares and monitors the execution of emergency evacuation plans as a joint effort with ESH and TO personnel.
- Coordinates the LANL safety procedures and requirements for remote operations at the Test Site or in areas that use NTS.
- Schedules site-specific training in accordance with DOE/NV and LANL regulations.
- Interfaces with DOE/NV Site Occupational Medicine Director, and ESH-2, LANL Occupational Medicine, to provide occupational medicine support to LANL employees at the NTS.
- Supervises Warehouse operations.
- Provides for the transportation of hazardous cargo. Issues requirements for packing and storage of classified, radioactive and explosive items.
- Coordinates training for visitors and permanent party that is NTS specific, or that is LANL mandated and available through NTS contractors.

DX-4 Field Engineering Team

- Is responsible for the design, construction, maintenance, and support of facilities used for LANL operations.
- Coordinates designated ES&H responsibilities at active complexes and underground facilities, e.g., U1a.
- Assures electrical safety and qualification of personnel at LANL complexes and underground facilities.
- Supervises underground facility construction and containment operations.

- Provides designated Complex Manager for U1a.

- Supervises post experiment recovery and restoration operations.

DX-5 Experiment and Diagnostic Group

- Is responsible for conceiving, designing and supervising the fabrication and field installation in zero room and related test complexes for SCE projects. The experimental and diagnostic packages may also include ancillary systems such as vacuum and/or pressure systems. Other field test activities are supported as needed.

- Assists the TD in scheduling and interface management during the life cycle of an SCE or other test activity.

- Coordinates experimenters, diagnostic installation and system checkout activities. Provides criteria to BN for setup of the experimental/diagnostic test bed.

- Provides mechanical fabrication support during fielding activities.

- Is responsible for testing, handling, and the final preparations of experimental packages before arming and closure of underground zero room complexes.

- Coordinates ES&H activities inside zero room complexes and other related areas where experimental equipment is housed as delegated by the TD.

- Provides support to DX-4, the Test Office and others as requested.

- Monitors DX-5 fielded systems during SCE execution.

DX-7 Field Test Command, Control, and Communications Team

- Maintains and operates the timing and firing systems (T&F) and ensures the safety and integrity of T&F systems used for the execution of SCEs. T&F activities consist of conducting pre-compatibility, compatibility, detonator dry runs, hookup of all electrical hardware as the explosives package is installed (Insertion), pre-arming at the Red Shack, arming the explosives package under program control and system monitoring during execution.

- Provides the necessary process control systems to operate ancillary systems, e.g., vacuum controls, during an SCE.

- Maintains and operates control systems for operational and monitoring systems.

- Is responsible for the development, build-up, installation, checkout, and operation of data acquisition to meet specific customer needs. Provides information to the TD following test execution.

ESH-12 NTS Support Team

- Analyzes and defines occupational hazards.

- Reviews and approves hazardous materials for underground use at the U1a Complex.

- Generates Special Work Permits (SWPs) for operations at the U1a Complex.

- Provides a Radiological Control Manager (RCM) for the NV Radiological Control Manager's Council.

- Generates LANL/NTS Radiological Work Permits. (See Page IX-4.)

- Analyzes and defines radiological hazards.

- Generates and maintains the LANL portion of the NTS Radiation Protection Program.
- Provides guidance and support in the areas of industrial hygiene and health physics.
- Functions as the on-site ESH Division representative and coordinates specialized ES&H assistance as needed.
- Provides NTS site-specific radiological training for employees who receive core training at another facility.
- Identifies ES&H training requirements for specific activities.
- Generates Reentry Plans and Gas Sampling Plans for the U1a Complex.
- Provides technical support to the TD for the evaluation of air quality and radiological conditions immediately following SCE execution.
- Coordinates respirator fit testing and training at NTS.
- Assesses and coordinates personal protective equipment (PPE) requirements.
- Coordinates the maintenance of the U1a Complex Air Quality Monitoring System.

ESA-WMM Weapons Materials and Manufacturing

- Assemble, disassemble, and transport nuclear explosive-like assemblies and subcritical experiments.
- Are responsible for packaging retrograde parts shipments in accordance with Laboratory policy and federal transportation standards.
- Coordinate ES&H responsibilities at the DAF.

- Generate DAF Plans and Procedures covering Management, Safety and Security to implement requirements from the authorization basis documents.

P-22 and P-23 Hydrodynamics and X-ray Physics (P-22) And The Neutron Science and Technology (P-23) Groups

- Are responsible for fielding and performance of test diagnostic systems associated with the SCE program.

DOE/NV M&O Contractor (BN Company)
Is responsible for:

- Maintenance of designated NTS facilities and infrastructure.
- Fire protection services.
- Emergency response support.
- Industrial hygiene and medical support.
- Radiological monitoring service.
- Radiological protection support.
- Disposal of hazardous and radioactive waste.
- Field construction and craft support.
- Occupational medical services.
- Food services and housing.

DOE/NV Protective Services Contractor Wackenhut Services, Inc. (WSI)

- Is responsible for overall NTS physical security.
- Provides physical security at designated test complexes.
- Escorts convoys transporting explosives and/or SNM.

Nye County Sheriff

- Is responsible for patrol of highways and roads and law enforcement.
- Conducts on-site vehicular accident investigations.
- Handles cases of civil disobedience.

PERMITS and AUTHORIZATIONS

Some activities may require **Real Estate Operations Permits (REOPs)**, **Activity Agreements** and/or **Authorizations Agreements**. These activities must be coordinated through the Test Office (295-4400). The Test Office will, in turn, evaluate the requirements and assist in the approval process (NV M 412 series, see Reference Section). The user should consider time for this "permitting" in the planning/scheduling of an activity.

REFERENCES

1. NV M 450.X, Authorizations and Activity Agreements for Facilities and Operations.
2. U.S. Department Of Energy, Nevada Operations Office, Order NV 56XG.1, Subcritical Experiments.
3. U.S. Department Of Energy, Nevada Operations Office, Order NV56XH.1 TH 08-10-98 B, Subcritical Experiment (SCE) Safety Program.
4. U.S. Department of Energy, Nevada Operations Office, Order 11432-203 UC-702 NTS Radiation Protection Program.
5. Tri-Lab (LANL/LLNL/SNL) Interface Document, TDO/NTS: U-99-23.
6. Integrated Safety Management (LANL), LA-UR-98-2837, Rev.3, September 1999.

7. Dynamic Experimentation Division (DX) Operations Manual (LANL), Rev.3, dated March 9, 1999.

8. DX-4 Configuration Management (draft).

9. U.S. Department Of Energy, Nevada Operations Office, Order NV 450.4A Integrated Safety Management Policy.

10. LANL DX-7 Hazard Control Plan; SOP Number: DX/NTS-7-01, "Hazard Control Plan For Group Dx-7 Field Test C ^{3} Operations At The NTS", dated October 7, 1999.

11. Letter from Kenneth W. Powers, DOE/NV Contracting Officer to John C. Browne, dated May 18, 1999, entitled: "U1a Management: Delegation Of Designated Official (DO) For Doe Nevada Operations Office (Doe/NV) Contract No. DE-AC08-96NV11718 with Bechtel Nevada Corporation (BN)."

12. Letter from Kenneth W. Powers, DOE/NV Contracting Officer to John C. Browne, dated May 18, 1999, entitled: "Test Readiness: Delegation Of Designated Official (DO) For Doe Nevada Operations Office (DOE/NV) Contract No. DE-AC08-96NV11718 with Bechtel Nevada Corporation (BN)." Contract No. DE-AC08-98NV13149 with Wackenhut Services, Inc., (WSI)."

13. Letter from Kenneth W. Powers, DOE/NV Contracting Officer to John C. Browne, dated May 18, 1999, entitled: "U1a Management: Delegation Of Contracting Officer's Representative (COR) for DOE Nevada Operations Office (DOE/NV)."

14. Laboratory Implementation Requirement, 401-10-01.0, "Stop work and Restart."

15. DOE/NV Manual, "Project Screening And Location Approval Process" Manual, NV M 412.X, dated March 9, 1999.

16. NV M 11.1X, Functions, Responsibilities, and Authorities Manual.

17. NV P 450.3X, DOE/NV Work Smart Standards.
18. NV M 412.X, DOE/NV Real Estate/Operations Permit.
19. NV M 220.X, DOE/NV Oversight Management Systems.
20. NV 0 230.X, DOE/NV Lessons Learned.
21. NV M 252.1-1A, DOE/NV Directives System Manual.

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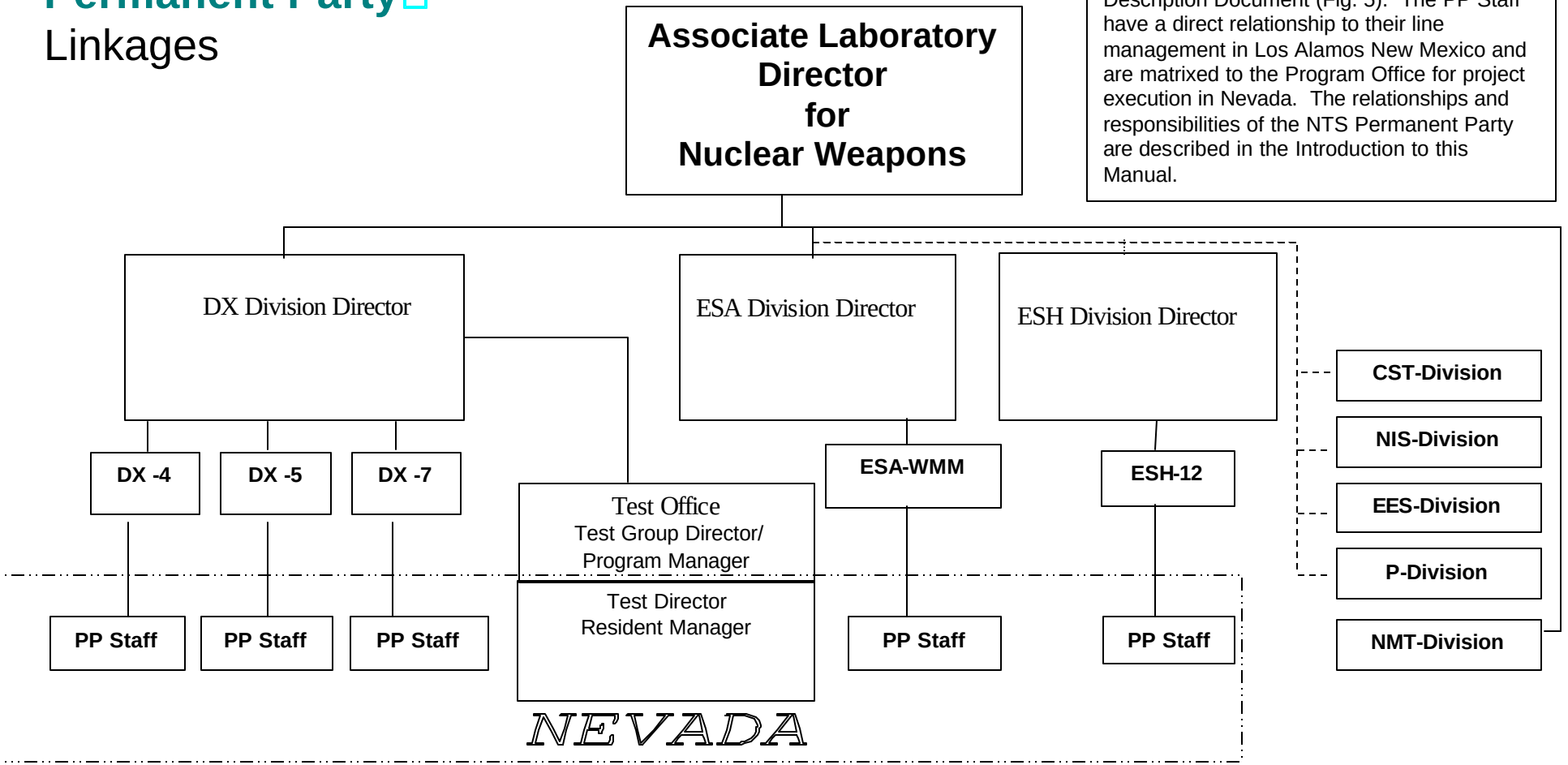
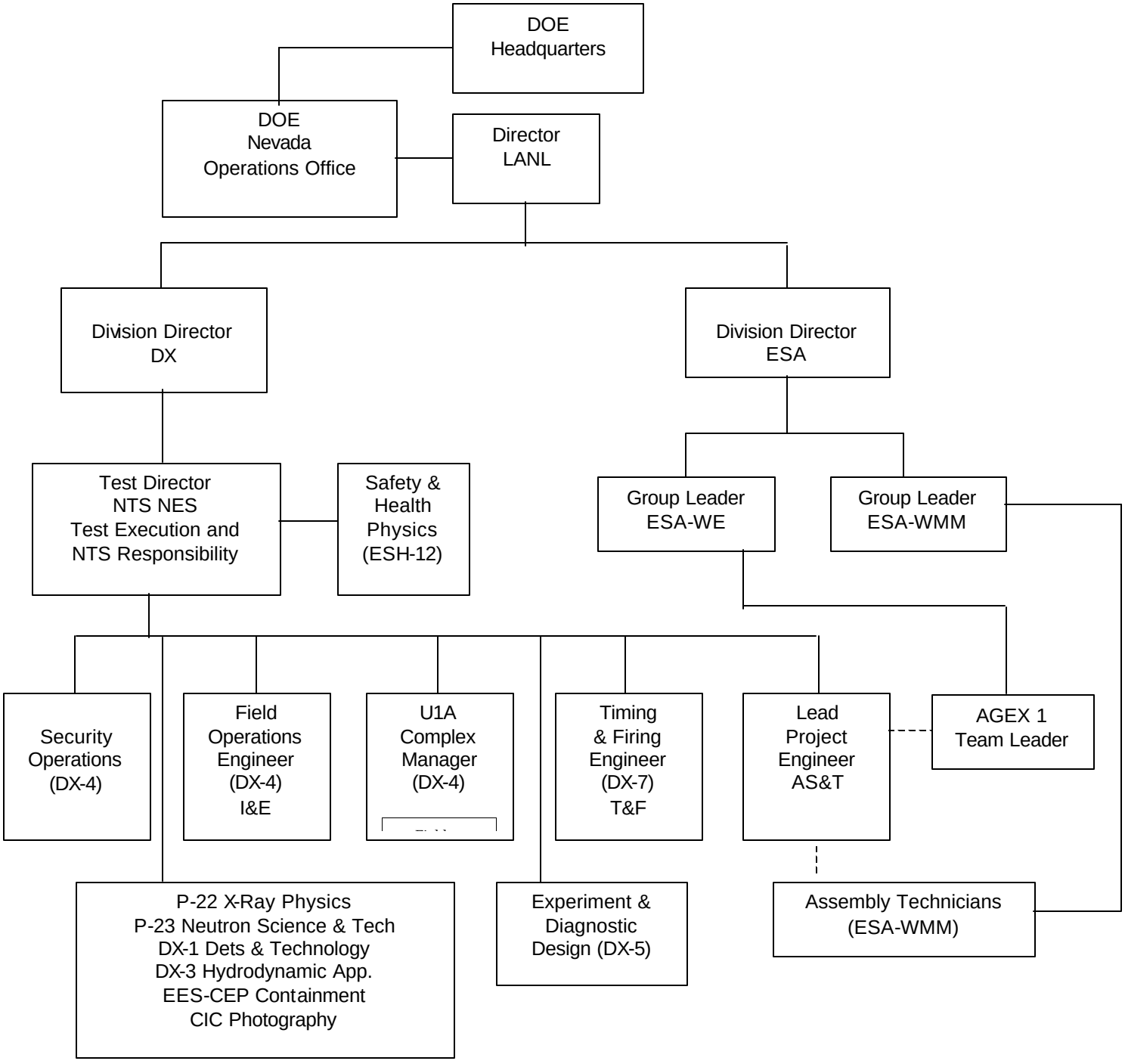
SECTION I APPENDIX
ORGANIZATION CHARTS

LANL NTS
Permanent Party
Linkages

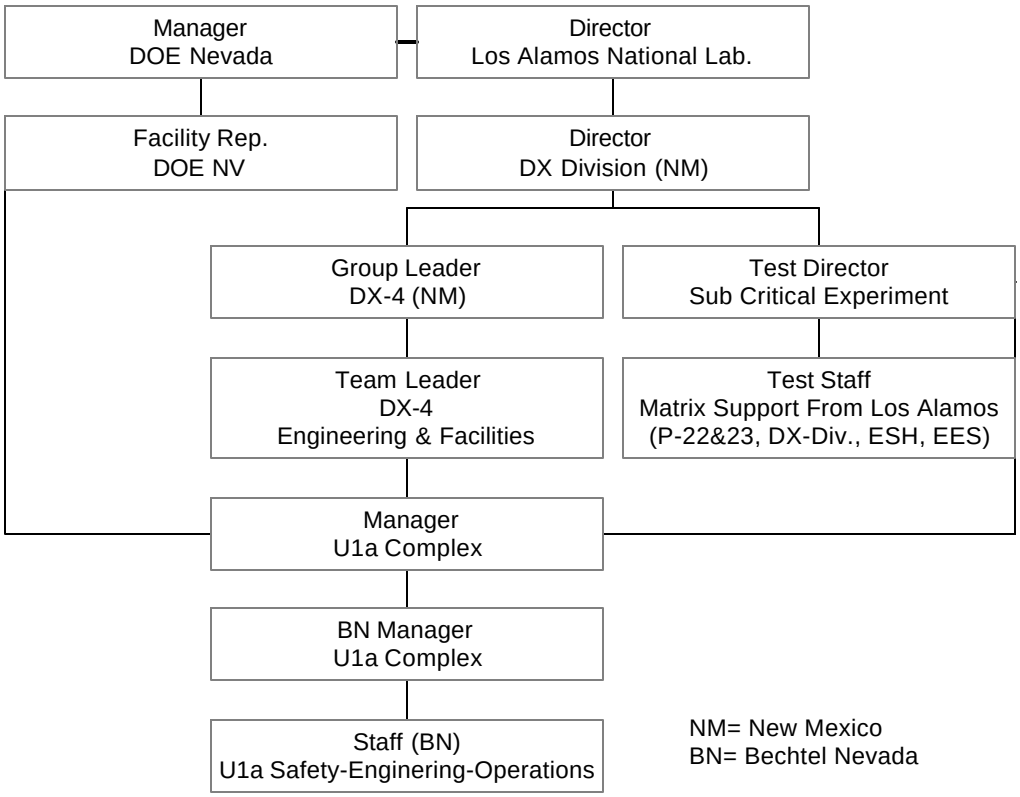
This Organization Chart shows the flow down for management from the Associate Directors level as outlined in the ISM Description Document (Fig. 5). The PP Staff have a direct relationship to their line management in Los Alamos New Mexico and are matrixed to the Program Office for project execution in Nevada. The relationships and responsibilities of the NTS Permanent Party are described in the Introduction to this Manual.



SUBCRITICAL EVENT ORGANIZATION

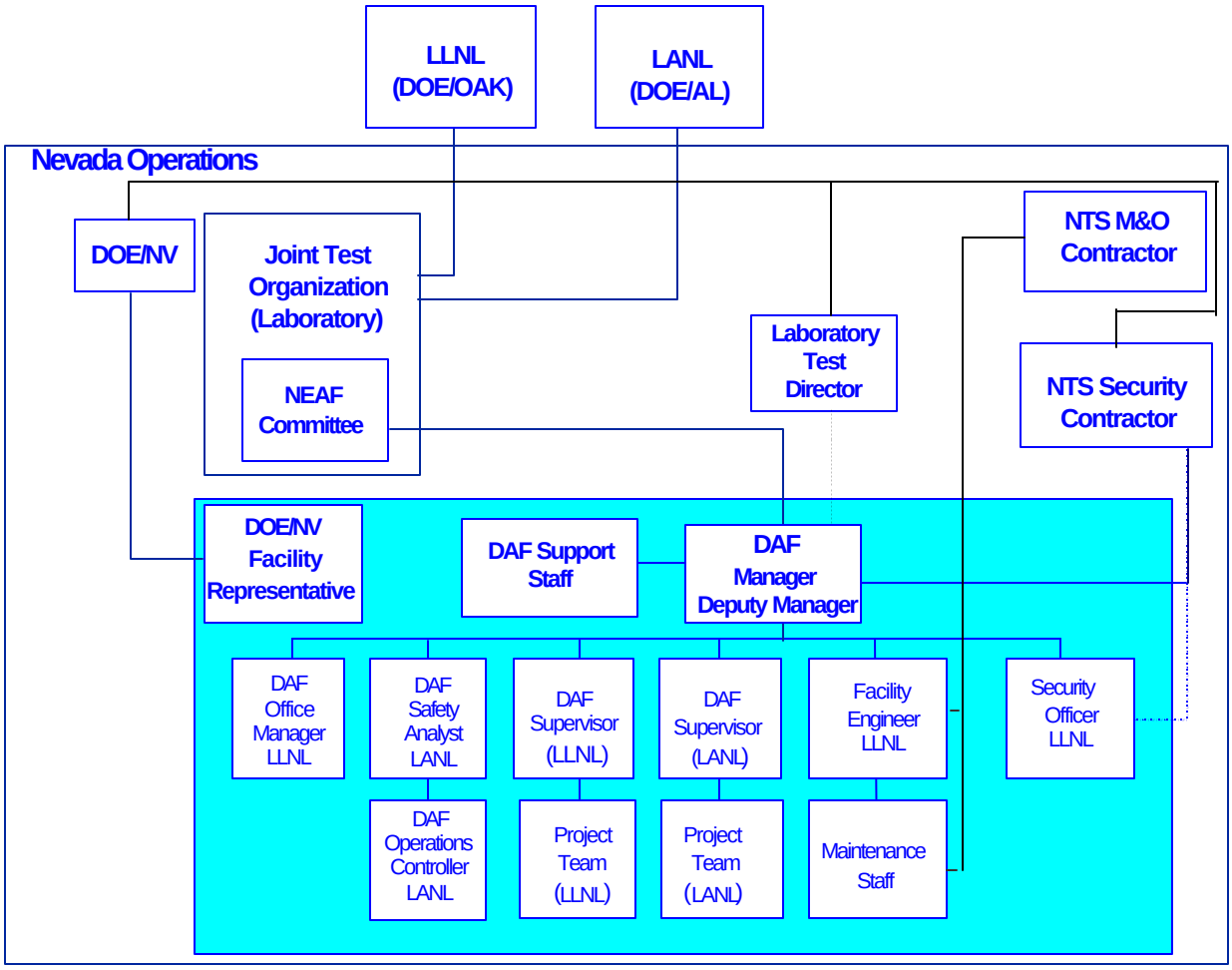


U1a Organizational Support



ORGANIZATIONS AT THE DAF

The relationships of organizations involved in DAF operations.



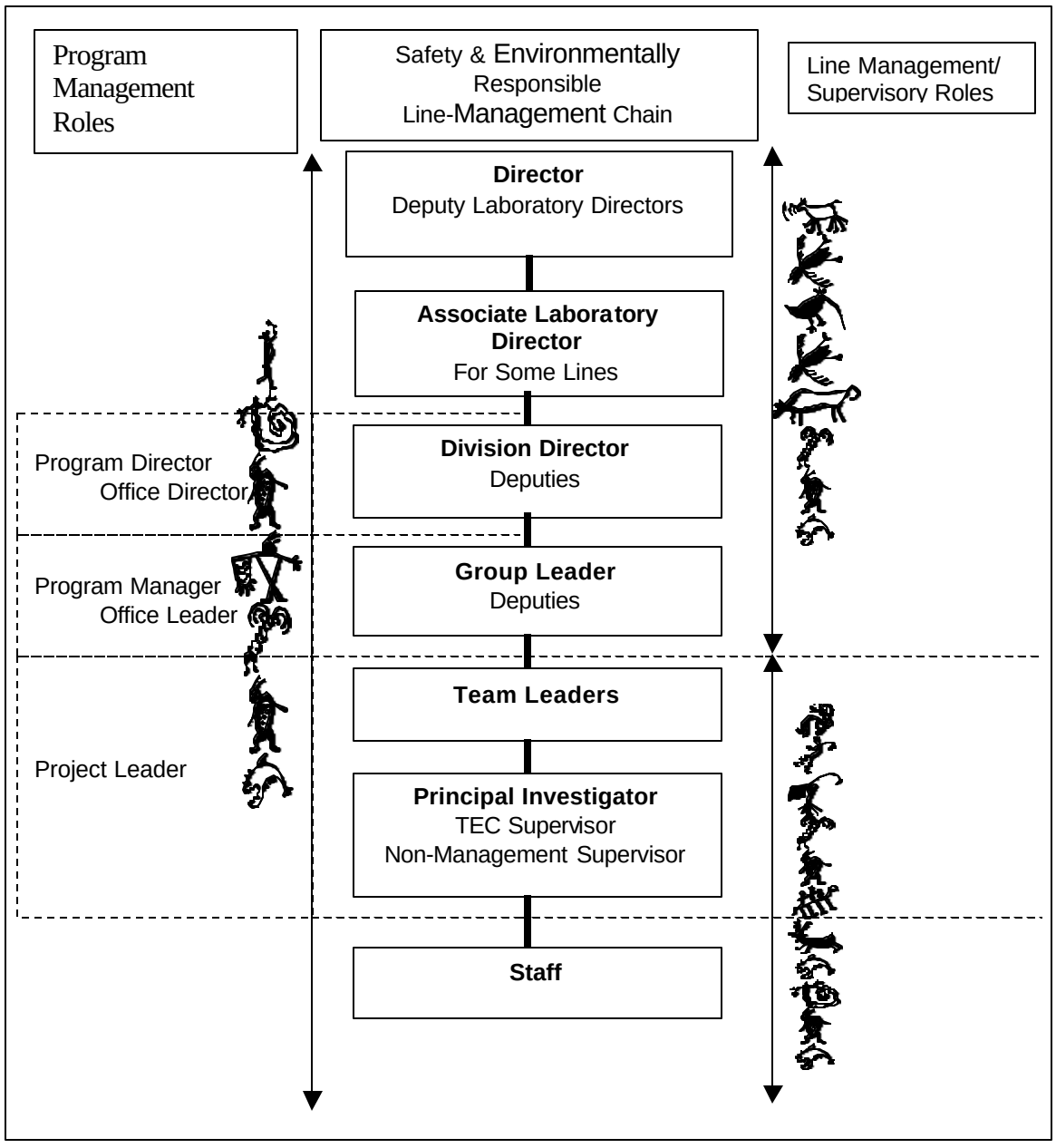


Fig. 5 Safety and Environmentally Responsible Line-Management Chain.

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SECTION II
EMERGENCY MANAGEMENT

PURPOSE

This section outlines emergency procedures and reporting procedures that are to be followed while working at the NTS.

PROCEDURES

Emergency response at the NTS can be obtained by telephone or by radio. Emergency notifications are linked to BN Medical, Nye County Sheriff's Office, BN Rad-Safe, BN Fire Department, and DOE Operations.

EMERGENCY NOTIFICATIONS

To make telephone notice of an emergency at NTS, **dial 911**. Identify yourself and your employing organization and state the nature of the emergency. **Remain on the telephone until the coordinator has received the necessary information and clearly releases you**.

By radio, repeat "**MAYDAY**" three times on the radio; identify yourself and the radio net you are using.

At NTS, the Communications and Information Center (CIC) will respond to the emergency radio distress call. Describe the nature of the emergency. **Remain in radio contact until the coordinator has received the necessary information and clearly releases you**.

INJURIES

For injuries, take the following actions (after requesting assistance):

1. Aid victims if you are properly trained and equipped for rescue operations and rescue is possible without undue risk to your personal safety.

2. Take measures necessary to prevent further damage or injury.

3. Secure the accident/incident scene for an official investigation, unless it could cause further damage or injury.

4. Contact the Test Office (295-4400) or the DOE Duty Officer (295-4015). Report details as follows:

   a. During working hours: Provide details to a TD or RM in the Test Office, **295-4400** (NTS) or to the DX-4 Operations Team on-site representative, **295-3400** (NTS), who will contact the available TD or RM.

   b. After working hours or if unable to contact Test Office personnel during working hours: Provide details to the DOE Duty Officer, **295-4015**, who will notify the appropriate LANL On-Call person.

MINOR INJURIES/ILLNESSES

Report promptly to one of the available first aid stations for minor injury/illness.

NTS, AREA, 6 AID STATION, (**Bldg. CP-70**) -24 hours a day , Monday – Friday. EMERGENCY AND FIRST AID CARE ONLY. **295-3490.**
Ambulance service is available.

NTS, MERCURY CLINIC, (**Bldg. 650**) – 7:00 a.m. to 5:00 p.m. Monday – Thursday. Physician(s) on duty. **295-6227**

NTS, MERCURY FIRE STATION, (**Bldg. 425**) – 24 hours a day, 7 days a week. EMERGENCY AND FIRST AID CARE ONLY. **295-6400**

NTS, AREA 25 AID STATION, (**North Portal**) – Dayshift, 4 days a week. EMERGENCY AND FIRST AID CARE ONLY. **295-6192**

NORTH LAS VEGAS CLINIC, (**Losee Road Facility, Building C-1**)
7:00 a.m. to 4:30 p.m. Monday – Thursday
7:00 a.m. to 4:00 p.m. Friday. Physician(s) on duty. **295-2957**

INJURY REPORTING

You must report injuries to your supervisor (LANL policy). A list of LANL On-Call persons, entitled “LOS ALAMOS (LANL) ON-CALL NOTIFICATION” is posted in the Test Office at CP-1. The DOE Duty Officer (295-4015) always has a copy of the LANL On-Call listing.

Notifications to "Emergency Operations Center" (EOC), the employee's group and division offices are coordinated by the Test Office.

OCCURRENCE REPORTING

LANL and DOE policies and regulations (including workers' compensation laws) require accident and incident reporting. The reports offer protection for the employee and the Laboratory. The reports also provide information to help identify trends to prevent future accidents of similar nature.

In general, the Resident Manager coordinates occurrence reporting activities for NTS activities with exception of work at the U1a Complex or the DAF. The U1a Complex Manager is responsible for reporting at U1a, and the DAF Manager at that facility.

Responsibilities for different situations and management levels are included in the DOE Order, DOE O 232.1A, Occurrence Reporting and Processing of Operations Information and as supplemented in DOE M 232.1-1A, same title.

You must report all injuries, fires, property loss, unusual/off-normal/ occurrences to the Test Office, 295-4400 (even if injury, illness, or property damage did not occur). (See Reference 4.)

The Test Office will then initiate the appropriate notification chain.

Types of occurrences to be reported are as follows:

- Near misses that could have resulted in serious injury or illness, property damage, or programmatic impact.
- Substantial loss of a protective system's ability to perform its intended safety function.
- Occurrences that could cause a significant program delay.
- Occurrences that involve information possibly useful to other organizations in preventing similar incidents.
- Release of radioactive material to the environment.

PRICE-ANDERSON AMENDMENT ACT (PAAA) REPORTING

Occurrences involving nuclear materials are reported in accordance with provisions set forth by the Price-Anderson Amendment Act.

SPILLS

Report all spills of potentially hazardous materials and/or radioactive materials immediately to ESH-12/NTS Support Team for directions and assistance. Petroleum products (more than 10 gallons) that result in release to the environment must be reported to the Test Office.

FIRES

Report any fires involving property damage without delay to the Fire Department. Report the fire even if it has been extinguished. The report will allow the Fire Department to investigate the fire as required by DOE regulations and to refill any extinguisher that may have been used.
The Fire Department emergency numbers are **911** or **295-6400.**

REFERENCES

1. Occurrence Reporting and Processing of Operations Information, DOE O 232.1A, and as supplemented in DOE M 232.1-1A, same title.

2. Price-Anderson Amendment Act.

3. LANL NTS Occurrence Reporting Procedure.

4. LANL NTS PAAA Reporting Procedure.

5. 10 CFR, QA 830.12.

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SECTION III
TRAINING

PURPOSE

The purpose of this section is to identify the training requirements for working at NTS. This training, with an emphasis on the Laboratory's ES&H procedures, particularly the recognition and control of potential hazards, will enable employees to evaluate the risks associated with their work. ES&H courses available through the Laboratory are listed in the ES&H Course Catalog, which is published by ESH-13, or online on the Lab Home Page under "Training."

NTS Radiological Training requirements are identified in the NV/YMP Radiological Control Manual, DOE/NV/11718-079, Article 631.

RESPONSIBILITIES

Training Coordination

The DX-DO Training Generalist (assigned from the ESH-13 Training Group) will provide information on scheduled safety-training courses and will assist supervisors in developing training programs at LANL. The DX-4 Operations Team or ESH-12/NTS Support Team will assist in coordinating training courses for employees assigned to the NTS.

MINIMUM SITE-SPECIFIC TRAINING and SECURITY REQUIREMENTS

The DX-4 Operations Support and ESH-12/NTS Support Teams coordinate and specify the required safety and security training that LANL employees, contractors and students must undergo in order to work at the NTS. Training requirements depend on work location and type of work to be performed. Most forward area work requires several training courses while a "project meeting" in Mercury or at a forward area office would probably not require NTS site-specific training. The DX-4 Operations Team is always available to provide safety and security guidance to LANL travelers.

NTS site-specific training does not replace those Los Alamos based courses mandated for LANL employees, contractors or students.

Safety & Security Briefing

The NTS Safety Security Briefing video for Los Alamos employees must be viewed by all Lab personnel (or contractors) working or visiting the Test Site for more than three concurrent days. The briefing and documentation are available through the DX-4 Operations Team and various group offices at Los Alamos.

NV General Employee Radiological Training (GERT)

NV GERT is required for access to the NTS areas shown on the map (Appendix 1, Radiation Safety Section). Other areas and NV facilities may also require GERT as determined by ESH-12/NTS Support Team. The course is packaged in a CD-ROM and is available at several NTS locations, namely; CP-45, Building 600 (Mercury), and CP-214. The course is also available in Los Alamos through the DX-Division Training Coordinator, **505-667-2502**.

GERT from another facility will not be accepted for access to NV facilities.

DAF Additional Training

In addition to the site-specific training noted above, DAF General Employee Training (GET) is required for work in that facility. In Los Alamos, contact the LANL ESH-13 Training Group for schedules. At the NTS, training is provided as requested at the DAF or by the LLNL Training Officer at Building 600, Mercury. Contact the DX-4 Operations Team, **295-3400**, for information.

U1a Additional Training

In addition to the site-specific training noted above, NTS Underground Worker Safety Training and U1a Specific Underground Worker Safety Training courses are required for work in that facility. Contact the DX-4 Operations Team, **702-295-3400**, for scheduling information.

TRAINING REQUIREMENTS FOR RADIOLOGICAL WORK

Additional radiological training may be required in specific areas to perform specific tasks at the NTS. Contact the ESH-12/NTS Support Team, **702-295-7620**, to determine training requirements.

Requirements for RWI and RWII training are determined on a case-by-case basis and assessment by the ESH-12/NTS Support Team as part of the review process when an RWP is submitted by the using organization.

RWI and RWII training are acceptable from another facility in accordance with the requirements set forth in the NV/YMP Radiological Control Manual, Article 612. Proof of training is required. It consists of name, date of training, topics covered and the name of the certifying official which must be submitted to the ESH-12/NTS Support Team.

The NTS site-specific training, available from the ESH-12/NTS Support Team, **295-7620**, must be read and acknowledged by signature.

RWII training at the NTS includes practical factors training every two years (Ref. NV/YMP Radiological Control Manual, Article 633.2). LANL based RWII training will be accepted for work in High Contamination or Airborne Radioactivity Areas **only** if the practical factors training has been completed within the last two years.

TRAINING REQUIREMENTS for ELECTRICAL AND LASER SAFETY

Electrical Safety

See Section X, Electrical Safety, for electrical safety training requirements.

Laser Safety

See Section XI, LASER Safety, for safety training requirements.

ADDITIONAL ES&H TRAINING

Los Alamos

Other ES&H courses, described in the ES&H Course Catalog are available as needed for specific needs. The ESH-12/NTS Support Team and the individual's line manager/supervisor will determine the needed courses to meet NTS requirements.

NTS

As dictated by need, added ES&H courses will be exported to the NTS.

ES&H TRAINING FOR OTHER AREAS

Access to specific areas of the NTS such as Areas 12, 5, etc., may require further training in addition to those listed above. To determine whether there are additional training requirements for areas you will be visiting or working at, contact the DX-4 Operations Team, **295-3400**.

REFERENCES

1. NV/YMP Radiological Control Manual, DOE/NV/11718-079, Article 631.

2. Los Alamos National Laboratory Home Page, www//htp.lanl.gov.

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SECTION IV
VISITOR CONTROL

PURPOSE

The health and well being of Laboratory employees while travelling to and during their stay at the NTS are crucial to safety and meeting programmatic goals. This section describes those facilities and resources available to the traveler, the responsibilities of the Laboratory and those of the traveler. These rules and policies apply to all Laboratory employees, contractors, and consultants who travel to the NTS to perform their work at NTS or at other remote sites. The last page (after Appendix 2) of this section contains an NTS map showing roads, facilities, etc.

RESPONSIBILITIES

The Test Office and its support organizations at the NTS are responsible for providing safe reliable transportation, quality housing and badging facilities to the LANL employee/ representative.

The traveler as a LANL employee/representative is expected to conduct Laboratory business in a safe and professional manner both at the NTS and while in travel status.

NOTIFICATIONS

Because of the many ongoing projects at the NTS or related areas it is crucial that the traveler make the TO aware of his or her plans so that resources are made available and schedules can be implemented. This will minimize possible delays, wasted time or in the worst case a cancelled trip. This is done through JTO Travel.

Each traveler to the NTS or other remote site is required to coordinate his or her travel through JTO Travel and provide details of the impending trip. The JTO Travel office is located in Mercury, Nevada, at Building 600 (“Blue Box”), **702-295-6071**. The normal workday at the NTS is 7:00 AM to 5:00 PM (Pacific Time), Monday through Thursday. For hours outside the normal workday, call **702-295-6071,** and leave voice mail or e-mail travelnts@lanl.gov. This facilitates the immediate location of employees in the case of an emergency involving the employee or a member of their family.

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SECTION IV
VISITOR CONTROL

TRAVEL and HOUSING ARRANGEMENTS

JTO Travel

The JTO Travel Office is available to assist and/or provide the following NTS area services:

- Providing housing reservations in Mercury.
- Ordering box lunches, radios, and pioneer equipment for remote operations.
- Obtaining hotel reservations in Las Vegas, Nevada.
- Obtaining hotel reservations at other areas, e.g., Tonopah, Nevada.
- Making airline reservations or changes for travelers.

SECURITY AWARENESS

Physical security of Government property and classified matter is no less diminished at NTS because of the remoteness of the area. The traveler is expected and required to maintain the same levels of awareness as if he or she was in Los Alamos or at another home base.

The DX-4 Operations Team provides on-site briefings and classes specifically tailored to NTS activities. The traveler should discuss his or her security requirements/needs with the DX-4 Operation Team Leader who will make the necessary arrangements. The telephone number for the DX-4 Operations Team is **702-295-3400**.

ACCESS BADGES AND TLDs

Badges produced in Los Alamos or at some other DOE facility are universal and may be used at the NTS or at other DOE facilities in the area. An NTS TLD is required for access to some radiological and controlled areas such as DAF and U1a. Contact the ESH-12 ESH-12/NTS Support Team, **702-295-7620,** to determine NTS dosimetry requirements. When the traveler departs the NTS, the

TLD **must be left** with the JTO Travel office during work hours or deposited in the specially marked drawer in the foyer at Building 600, Mercury.

In the event an employee arrives at the NTS without his or her Laboratory access badge, a temporary badge to cover the length of stay and at the proper security level can be obtained by calling the DX-4 Operations Team, **295-3400**. They will initiate the process to provide the traveler with the temporary badge. The badge will be produced by the Badge Office at Gate 100 (Main Gate). For after-hours needs, the Badge Office at Gate 100 will provide an access badge for **Mercury Only (Red)** so that the traveler may have access to rooms and cafeteria. An access badge for forward areas can be obtained the next day during normal work hours as described above.

Any employee, subcontractor or student who is found in a forward area wearing a "Mercury Only" badge will be directed to return to Mercury for proper badging. If WSI is involved, they will escort the individual to Mercury for proper badging and a breach of NTS rules will be issued to the parent organization.

The references at the end of this section provide detailed information on badging requirements and procedures.

The security level indicated on the badge (as in Los Alamos) permits access to various areas on a need-to-know basis, however, certain areas require additional approvals. The DX-4 Operations Team will assist in the approval process.

MOTOR VEHICLES

GSA/DOE-owned and leased/rental vehicles shall be used for official purposes only and in accordance with DOE and LANL regulations. Operators of GSA/DOE-owned vehicles shall comply with federal, state and local traffic regulations to ensure their safe and efficient operation.

Described below are the procedures and employee responsibilities for:

- Proper utilization of GSA/DOE-owned vehicles assigned by DOE/NV to LANL for Laboratory use.

- Safe operation of motor vehicles.

- Appropriate management reviews to ensure compliance with established DOE regulations.

LANL Test Group Director (TGD)

- Provides motor vehicle policy and guidance.

- Authorizes the acquisition of support vehicles.

- Ensures that GSA/DOE-owned and -leased/rental vehicles are used only for official business and are operated in accordance with all applicable rules and regulations.

- Recommends appropriate disciplinary action for employees who do not comply with established policies and procedures.

LANL DX-4 Operations Team Leader

- Is responsible for the allocation and control of all vehicles assigned to the Laboratory at the NTS and for their overall management.

- Ensures that each person operating a GSA/DOE-owned vehicle has a valid state motor vehicle operator's permit for the type or class of vehicle he or she operates.

- Makes available to drivers pertinent NTS traffic and safety regulations. Prepares an organizational vehicle policy for issue to all Laboratory personnel operating a GSA/DOE-owned vehicle at NTS.

- Ensures that GSA/DOE-owned and leased/rental vehicles are used for official purposes only.

JTO Vehicle Coordinator

- Interfaces with the DOE/NV M&O for procurement and issue; repair and maintenance; and, service and inspection of GSA/DOE and BN vehicles assigned to LANL and LLNL at the NTS.
- Makes reservations for rental vehicles.
- Acts as liaison for vehicles to be picked up at McCarran Airport. These vehicles are staged at the Avis Rental Car Lot adjacent to McCarran Airport. Travelers should take the Avis Shuttle to the rental lot for vehicle pickup.
- Assigns GSA/DOE-owned vehicles to permanent party personnel and travelers for use at the NTS.
- Briefs travelers on local road conditions, availability of fuel and other related services at the NTS.
- Publishes guidance on where to get vehicles serviced.

Line Managers/Supervisors

- Ensure that drivers are familiar with federal, state, and NTS traffic and safety regulations.
- Enforce drivers' compliance with security, safety, and accident procedures.
- Enforce "Official Use Only" policy for vehicles.

LANL Employees, Contractors and Consultants

- Must possess a valid state operator's permit at all times while operating a GSA/DOE-owned vehicle.
- Must ensure proper physical security of GSA/DOE-owned vehicles and equipment.

- Must comply with all federal, state, and local regulations pertaining to GSA/DOE-owned vehicles and their operation.
- Report all vehicle safety and maintenance deficiencies immediately to JTO Travel.
- Must ensure that GSA/DOE-owned or -leased/rental vehicles are used only for the conduct of official business.
- Must perform pre-operation equipment, damage and safety checks on their assigned vehicle.
- Must comply with their employer's policies and procedures.

MOTOR VEHICLE SAFETY

Equipment

- **Seat belts**. It is a requirement for all passengers in **all vehicles** to wear seatbelts while the vehicle is in motion. **It is the driver's responsibility to review in-vehicle safety materials before operation and ensure that all passengers are secured.**
- **Emergency Equipment**. First aid kits are stored in each GSA/DOE-owned vehicle for use in the event of emergency or breakdown. The radio net is also available for emergencies.
- **Unauthorized.** CB radios, radar detectors, personal cellular telephones and personal decals shall not be installed/used in GSA/DOE-owned vehicles at any time or in leased/rental vehicles while on the NTS.
- **Fuel**. Fuel for GSA/DOE-owned vehicles is available on a 24-hour basis at the self-service stations located in Mercury and Area 6, using the credit card assigned to each vehicle. The same credit card may be used at accepting service stations in Las Vegas. Out-of-pocket fuel expenses for official travel are reimbursable by JTO for Permanent Party users. Official travelers are reimbursed by their travel offices for out-of-pocket fuel purchases. Users of leased/rental vehicles are expected to fuel their vehicles in Las Vegas before travelling to the NTS.

However, if fuel is required on-site, JTO Travel/DX-4 Operations Team will make arrangements for and assist the traveler in refueling.

Traffic Regulations

On-Site

- **Speed Limits**. Automobiles and pickup trucks being operated on the NTS shall not be driven in excess of 55 MPH. All employees must comply with posted speed limits. Trucks, other than pickups, shall not exceed 50 MPH. The maximum speed for any vehicle on unpaved roads is 35 MPH, but speed should never exceed the maximum safe speed for existing road conditions.

- **Emergency Vehicles.** When being approached from any direction by an authorized emergency vehicle utilizing audible and/or visual signals, the driver of any vehicle will yield the right-of-way and immediately drive to a position as close as possible to the extreme right of the road, come to a full stop, and remain there until the emergency vehicle is safely past, unless otherwise directed by authorized control personnel.

- **Explosives Convoys**. When being approached from the opposite direction by a group of vehicles displaying a sign designated "**EXPLOSIVES**" or **BLUE** flashing lights, drivers of all vehicles will immediately stop until the convoy passes. Upon overtaking an explosives convoy, slow to speed of convoy and do not pass until signaled to do so.

- **Normal Driving Conditions**. NTS Traffic Regulations for definitions and procedures to be followed under normal conditions are available from JTO Travel.

- **Enforcement**. The Nye County Sheriff's Department patrols and enforces established civil and DOE/NTS traffic regulations under provisions of Title 40 U.S.C. 318© at the NTS.

Off-Site

- **Speed Limits**. GSA/DOE-owned or leased/rental vehicles driven on public highways and roads shall not exceed posted speed limits.

- **Regulations**. Operators of GSA/DOE-owned or leased/rental vehicles off-site are subject to all state, county, and city traffic regulations.

Alcoholic Beverages

The possession of alcoholic beverages at the NTS, including beer and wine, is limited to Area 23 (Mercury). Alcoholic beverages are not permitted in any other NTS area or unauthorized transit between areas. The consumption of alcoholic beverages in any vehicle is prohibited by Nevada laws. The TGD has **Zero Tolerance** for violations of law/policy regarding alcoholic beverages.

Accidents

Accidents can occur at the NTS or off-site. The reporting procedures are somewhat different for each location however, it is always a first priority to take measures to prevent further accidents, aid injured persons, notify the proper authorities and protect property.

Accident Notifications

1. On-site

The driver of a vehicle involved in a traffic accident on the NTS resulting in injury to or the death of any person or damage to any property, regardless of the amount of damage, shall immediately report the accident. The vehicle operator shall:

- Not move the vehicle from the scene of the accident until such time as Sheriff's Office officials have given permission to remove the vehicle. Exceptions shall be made when safety or operational reasons dictate that the vehicle be

moved immediately. Take appropriate measures to prevent further accidents by providing suitable warning signals for oncoming traffic.

- Render assistance to the occupants of vehicles in the event of injury.

- Notify the Nye County Sheriff's Office at the NTS, the operator's supervisor, and the Test Office at the earliest possible time, giving location and extent of the accident and if ambulance service is required.

- Fill out the SF91, Accident Report Form, and submit it to the Travel Office.

2. <u>Off-site</u>

- Report any accident to local authorities and the LANL On-Call person. For after-hours contact the DOE Duty Officer, **295-4015**, who will in turn notify the appropriate LANL On-Call person.

- Follow the same guidelines as given above.

- Notify the nearest law enforcement official, giving location and extent of the accident and if ambulance service is required. Notify the operator's supervisor and the Test Office at the earliest possible time.

- Make no statements relative to responsibility for the accident, except to the police and authorized investigating officials.

Every driver of a vehicle involved in an automobile accident must complete a written accident report. Accident report forms, GSA SF 91, can be found in the glove compartment of each GSA/DOE-owned vehicle and shall be filled out as completely as possible at the scene of the accident. Leased/rental vehicles typically carry similar accident report forms usually found in the glove compartment. The completed report shall be turned in to JTO Travel (295-6071) as soon as possible.

Reporting Mechanisms

1. By Phone

Dial 911. Identify yourself and your employing organization and state the nature of the accident. **Remain on the telephone until the coordinator has received the necessary information and clearly releases you**.

Other telephone numbers:

Nye County Sheriff	**295-6600**
DOE Duty Officer (CIC)	**295-4015**
LANL TO	**295-4400**
LANL DX-4 Operations Team	**295-3400**
Mercury Fire Station	**295-6400**

2. By Radio

Repeat "**MAYDAY**" three times on the radio; identify yourself and the radio net you are using. At NTS, LANL uses **Net 5**. At the NTS, a special coordinator (CIC) will respond to the emergency radio distress call. Describe the nature of the emergency. **Remain in radio contact until the coordinator has received the necessary information and clearly releases you**.

Vehicle Storage

When it is necessary for an employee to take a GSA/DOE- owned vehicle off-site, the vehicle shall be parked at one of the approved facilities or, in the case of a TDY employee, at his or her place of lodging.

Approved Parking Sites For GSA/Doe-Owned Vehicles

DOE/NV Building
North Las Vegas Facility
Energy One Way, Las Vegas

McCarran Airport
(Coordinate with JTO Travel)

Pahrump
U.S. Post Office

YMP
(Coordinate with EES-7
702-295-3403)

Official vehicles may be parked overnight at DOE/ Contractor facilities with prior approval of the Test Office. Overnight parking at residences requires Test Office approval. Vehicles shall be parked at residences on an exception basis only.

Security

Laboratory employees shall take the necessary measures to prevent damage or theft of GSA/DOE-owned vehicles and property by ensuring vehicles are locked and secured when unattended. Windows shall be raised to prevent theft of articles and unauthorized entry. Equipment shall be placed in the passenger compartment or trunk with all doors locked. Keys shall not be left in unattended, unsecured vehicles except under controlled situations such as test complexes or rental lot.

Logistics

1. General

The JTO Travel Office is responsible for ensuring GSA/DOE-owned vehicles assigned to LANL at the NTS are maintained in accordance with DOE/BN established standards.

Employees who have a GSA/DOE-owned vehicle permanently assigned are responsible for cleaning, fueling, having the oil checked, and coordinating scheduled maintenance requirements for their vehicles.

2. Emergency Breakdown Procedures

- **On-Site**

  If a GSA/DOE-owned vehicle breaks down on the NTS during duty hours contact JTO Travel on **Net 5** or by Telephone **295-6071**. After duty hours notify the DOE Duty Officer by radio call sign "**CIC**" or telephone **295-4015** giving vehicle number, location and nature of the problem. Before leaving the vehicle, lock and retain keys. BN Fleet Operations Department has duplicate keys.

- **Off-Site**

  If a GSA/DOE-owned vehicle breaks down while en route to or from Las Vegas contact JTO Travel by radio or telephone during duty hours. After duty hours contact the DOE Duty Officer by radio call sign "**CIC**" or by telephone **295-4015**. If additional assistance is required contact the DX-4 Operations Team or the RM. The DOE Duty Officer can supply home telephone numbers of the LANL On-Call persons currently on duty.

3. Emergency Repairs and Towing

Appendix 1 contains a list of service stations under contract to provide services to GSA/DOE-owned vehicles.

4. Government Credit Cards

Government credit cards may be used at all locations in Las Vegas and Indian Springs listed in the Appendix. These businesses are under contract to provide services, as stated, to GSA/DOE-owned vehicles.

REFERENCES

1. Vehicular Safety, LANL LIR 402 –1320-01.1, ISSUED 11/25/98 (REVISED February 10, 1999).
2. GSA SF 91, Operator's Report of Motor Vehicle Accident.
3. WSI-301, Security Badges (February 22, 1999).
4. WSI-304, Visitor Control (February 22, 1999).
5. NTS Security Rules & Regulations Handbook (August 31, 1997).
6. BN Road & Facility Map, BN Drawing Number JS-090-075-C25.

GSA/DOE-OWNED VEHICLE REPAIRS AND SERVICE

JTO Travel should be notified when services are required. Gasoline/diesel, Lubrication, Mechanical Repairs and Emergency Tire Services are provided at the following facilities:

- **Light Duty Mechanical Repairs**

Expressway Texaco
101 N. Jones Blvd. (Jones & I-95)
Las Vegas, NV
702-870-590

Hours of Operation: 24 hours/day, 7 days/week
Mechanical Repairs: 8:00 AM to 5:00 PM Monday through Saturday

James West Automotive
2905 W. Washington
Las Vegas, NV
702-737-0133

Hours of Operation: 8:00 AM – 5:00 PM Monday through Saturday
Mechanical Repairs: 8:00 AM – 5:00 PM Monday through Saturday

Auto Lab
3307 Las Vegas Blvd. N. (Craig Road & Las Vegas Blvd.)
Las Vegas, NV
702-644-1233

Hours of Operation: 8:00 AM – 5:00 PM Monday through Saturday

University Texaco
1175 E. Flamingo Road
Las Vegas, NV
702-732-0999

- **Tire and Lubrication Services**

  Ted Weins Tire & Auto
  (any Ted Weins Tire Store in
  the Las Vegas Valley)
  Las Vegas, NV 702-873-8111 (directory services for other stores)

- **Warranty Repairs & Light Duty Vehicle Repair**

  Fairway Chevrolet Company
  3100 East Sahara Avenue (Sahara & Mojave)
  Las Vegas, NV
  702-641-1400

  Hours of Operation: 7:00 AM – 6:00 PM Monday through Friday

  Friendly Ford, Inc.
  660 North Decatur Blvd. (Decatur & Bonanza)
  Las Vegas, NV
  702-870-7221

  Hours of Operation: 6:30 AM – 7:00 PM Monday through Friday

  Desert Pride Dodge
  4701 West Sahara Avenue (Sahara & Decatur)
  Las Vegas, NV
  702-221-0000

  Hours of Operation: 7:30 AM – 6:00 PM Monday through Friday

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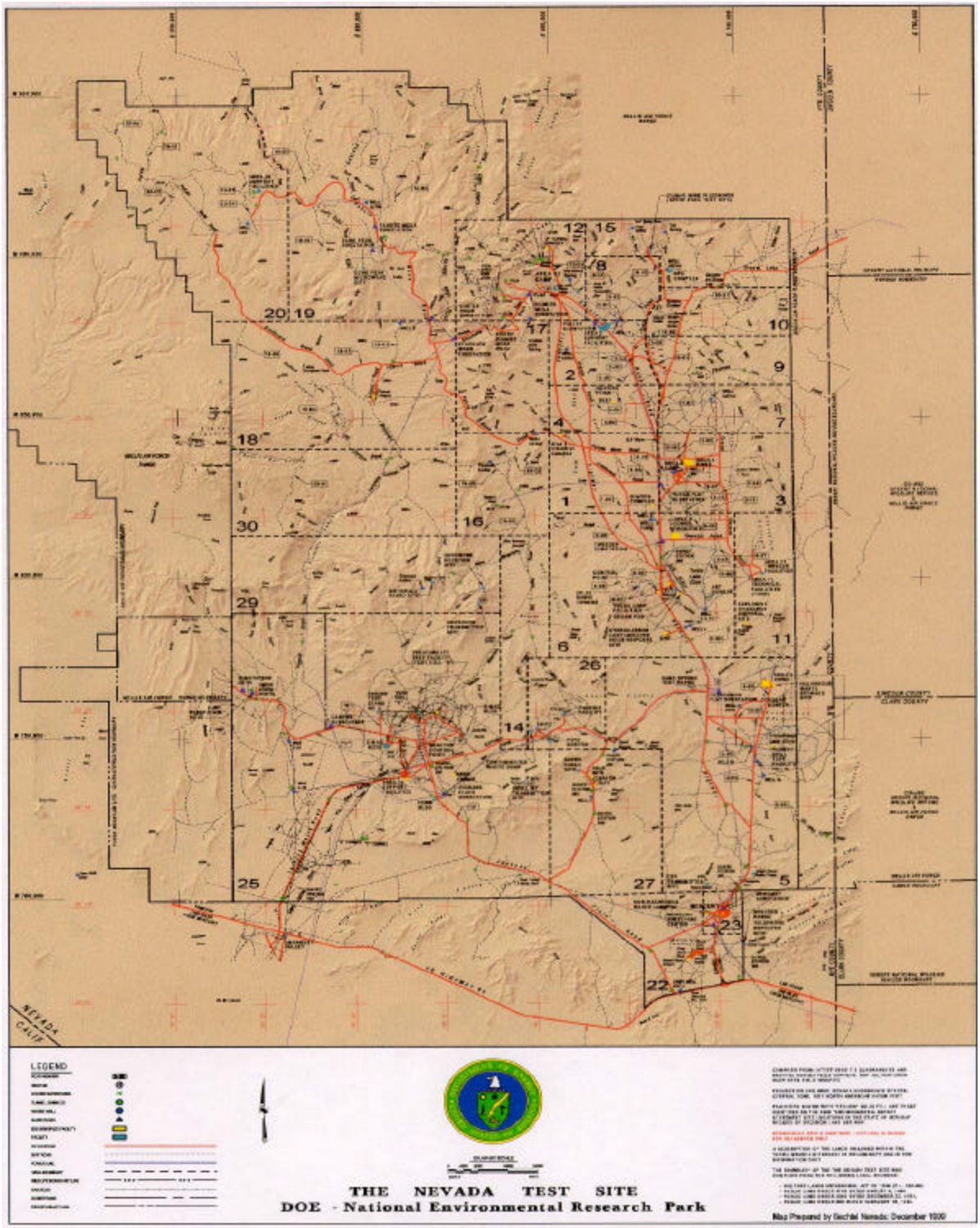
SECTION IV - APPENDIX 2
VISITOR CONTROL



OPERATIONS MANUAL

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SECTION V
ENVIRONMENTAL CONSIDERATIONS

PURPOSE

This section identifies both concerns about our effect on the environment and the environment's effect on us.

WEATHER

Only twelve air miles from the nearest border of Death Valley, the NTS covers over 1,350 square miles of high desert. Its rugged basin-and-ranges terrain is dominated by two high mesas, Rainier and Pahute, whose highest point reaches 7,679 feet. Precipitation of only four to twelve inches a year and temperatures that range between 110◦ F and -14◦ F combine to produce hot, dry summers punctuated by afternoon thunderstorms, and cold, dry winters. Except for a few small springs, the Test Site has no permanent surface water. The National Oceanic and Atmospheric Agency maintains the Desert Rock Weather Station that issues severe weather warning notices. It is incumbent on everybody to listen to these weather bulletins (CIC) and to take appropriate action to avoid hazardous situations that could develop.

Because of the extreme type of weather conditions found on the NTS, personnel should guard against exposure-related injuries. Condition your skin as gradually as possible. Workers should wear a head covering and a bandana around your neck to protect the back of the neck. Use a suitable sunscreen or lotion, particularly if you have fair skin. Take special care to avoid heat exhaustion in the months from May to October when desert temperatures may approach 110° F. During the winter months, blowing snow and cold dry air can lead to dehydration and frostbite, so fluid and electrolyte replacement are important. Drink plenty of liquids (such as Gatorade and water).

PLANT LIFE

Vegetation varies with the elevation and water table to include creosote bushes, Joshua trees, sagebrush, and Russian thistles and, in the higher elevations, pinion or juniper trees. The sides of the roads and the floors of the basins explode with beautiful desert blooms in the spring and are sometimes completely covered with snow in winter. Changes in the water levels and wind patterns in

the summer months will generally bring about dry fire hazard conditions, so extreme caution should be exercised when off-road work is necessary (especially during fire season). Water cans are available through the DX-4 Operations Team.

WILDLIFE

Treat all wildlife with proper caution. Some snakes and spiders are poisonous, and all, whether poisonous or not, can bite. Animals, such as field mice, rabbits, coyotes, badgers and foxes, can carry parasites and dangerous diseases. Larger animals such as horses, deer, burros, cattle, antelope and even mountain lions exist in varying numbers. Although they may appear to be tame, do not attempt to touch or handle wild animals. As stated in the DOE Safety Security Briefing, feeding wild animals is prohibited.

DESERT TORTOISE

There exists on the NTS an animal called the desert tortoise (Gopherus Agassizii). They can be typically found in portions of Areas 5, 11, 14, 22, 23, 25, 26, and 27 (basically the southern third of the NTS). They are currently protected under the Federal Endangered Species Act and Nevada State Law, which means that they should be left alone to wander as they see fit. There are major fines and jail time associated with harassment of the tortoises as well as significant job-related penalties. If you find one (dead or alive) note the location and report it to the DX-4 Operations Team or directly to the DOE Duty Officer, **295-4015.** See Reference Section for added information on protection of this endangered species.

HANTAVIRUS PULMONARY SYNDROME

Hantavirus is carried by rodents, particularly deer mice, and is present in their urine and feces. Humans are thought to become infected when they are exposed to contaminated dust from the nests or droppings of mice.

Contact the DX-4 Operations Team before entering any unoccupied or infrequently occupied building or trailer at the NTS for Hantavirus mitigation.

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REMOTE AREAS

If your work assignment requires traveling in the desert or on remote roads:

- **Notify your NTS supervisor and the DX-4 Operations Team so that proper arrangements can be made.**
- Avoid going alone. Traveling with a coworker who has a separate vehicle is the preferred way to make such a trip.
- Carry adequate supplies of water, gasoline, food, maps, shovels, and radio communication equipment.
- See Section 7, Remote Area Work, for travel procedures to remote areas at NTS.

NOTE: Maps of NTS show roads that may be passable only in rugged four-wheel drive vehicles and then only with difficulty. It is the DOE/NV policy that off-road driving be evaluated for its effect on the environment and authorized prior to operation. Always check with the DX-4 Operations Team or the Test Office before exploring the NTS.

REFERENCES

1. U.S. Fish and Wildlife Service web link for Desert Tortoise information: http://www.fws.gov/r9endspp/endspp.html.

2. DOE Brochure, "Protecting Desert Tortoises on the Nevada Test Site." (A synopsis of U. S. Fish and Wildlife Service rules and regulations regarding desert tortoises.) Available from the DX-4 Operations Team.

Note: The DX-4 Operations Team maintains the above references on file.

3. CDC, Center for Disease Control, Internet Path: http://www.cdc.gov/ncidod/diseases/hanta/hps/index.htm.

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SECTION VI
PERSONAL PROTECTIVE EQUIPMENT

PURPOSE

Personal protective equipment (PPE) is required in many facilities and areas of the NTS. PPE requirements are based on the level of the hazards to which a worker may be exposed. This section describes the mechanism to identify and obtain PPE at the NTS, and the responsibilities of the individual in obtaining and correctly wearing PPE to maximize personal protection.

RESPONSIBILITIES

Test Group Director

The TGD has overall responsibility for the safe working conditions and safety of individuals working at the NTS.

NTS Facility Managers

At the NTS, individuals may work in facilities operated by LANL, LLNL, DOE/NV M&O contractor, or a number of other organizations. The Facility Manager has the responsibility to establish the minimum PPE requirements for his or her facility. For LANL facilities at the NTS, the Facility Manager is responsible to assure that the minimum PPE requirements for the facility are consistent with Laboratory policy (Reference 1).

Line Manager/Supervisor

Supervisors/line managers shall ensure that their employees secure the necessary medical approvals and training and properly use the PPE identified for the task. Any training or certification required for the use of PPE will be documented at the group level.

Individuals

The individual is responsible obtaining and properly wearing PPE in areas that are posted, identified in procedures or SWPs, or as appropriate to the task. The individual must comply with the minimum PPE requirements established by the Facility Manager **AND** any additional, general PPE requirements established in this section. Each individual is required to keep supervision informed of any physical change or ailment that might affect the ability to use PPE. No individual has the authority to change PPE

requirements or to make decisions regarding the use/disuse of PPE without proper approval.

FACE AND EYE PROTECTION

Anyone visiting or working in a construction area must wear approved safety glasses. Conditions in construction areas often include flying or falling debris and possible exposure to hazardous materials. Standard safety glasses provide good general protection, but some work requires a greater area of coverage or different kind of protection. In some areas, and depending on the working conditions, such as posted construction areas underground at U1a, side shields are required.

LANL employees who require prescription safety glasses may obtain them through their groups. In Los Alamos, the employee obtains a prescription, and with group office approval, presents the appropriate Cost Center and Program Code to one of the local suppliers. The supplier orders, obtains and fits the glasses. It is a good idea to order side shields for safety glasses if the individual plans to work at the NTS. NTS-based employees make arrangements for safety glasses through the DX-4 Operations Team (Reference 3) who provides a purchase authorization that is presented to a local Las Vegas supplier (with a prescription obtained by the employee). The supplier orders, obtains, and fits the glasses.

Non-prescription safety glasses, plastic mono-goggles, eye shields, and goggles are available from the LANL warehouse, CP-100, or, for temporary use, from the DX-4 Operations Team, CP-45. Non-prescription safety glasses may also be drawn from the safety stock at Los Alamos.

PROTECTIVE HEADGEAR

Hard hats are required wherever posted, wherever overhead work is in progress, and in any other location where the danger of head injury exists. Hard hats are available from the LANL Warehouse, CP-100. Hard hats for temporary use by visitors or observers may be obtained from the DX-4 Operations Team, CP-45.

PROTECTIVE FOOTWEAR

Hard-toed safety shoes or miner's boots are required at all construction projects, test complexes, facilities, or in any situation where rough walking

surfaces, uneven surfaces, or obstructions on the floor may be encountered. Hard-toed safety shoes must be worn in shops, warehouse areas, or where impact or heavy materials may pose a safety hazard. Safety shoes should be considered when moving small, dense objects that, due to shape, size, or surface finish, are easily dropped (e.g. experimental gear, lathe chucks, metal stock, etc).

In Los Alamos safety shoes, including those with conducting and non-conducting soles, can be purchased from local merchants who have a contract with the Laboratory as an approved supplier. The group office provides the individual with the appropriate cost center and program code. The individual gives this information to the supplier along with his/her Z number for the purchase. At the NTS, safety shoes are obtained through the DX-4 Operations Team who will prepare a purchase authorization to a local Las Vegas merchant for any Laboratory employee (Reference 2). The individual presents the purchase authorization to the merchant for the shoe purchase.

RESPIRATORY PROTECTION

At the NTS, contact the ESH-12 NTS Support Team to complete the LANL Request for Respiratory Evaluation form 1465, schedule respirator fit testing/training, and/or obtain respiratory protective equipment. Full-face respirator fit test/training performed by ESH-5 in Los Alamos is accepted at the NTS. Laboratory employees must obtain a medical certification for respirator use from ESH-2 or DOE/NV M&O contractor Occupational Medicine through the DX-4 Operations Team before receiving a respirator fit test. The DOE/NV M&O contractor Health Physics Department provides the respiratory protection used at the NTS, which must be obtained by LANL employees through the ESH-12 NTS Support Team. Only NTS-provided respiratory protective equipment will be used at the NTS.

REFERENCES

1. Laboratory Performance Requirement, Personal Protective Equipment. LPR 402-710.1, dated September 11,1998.

2. Letter from DX-4 to Red Wing Shoe Store, Las Vegas, NV, DX-4-NO-97-056 Defining Signature Authority and Cost Limits for Safety Shoe Purchase, dated April 15, 1997.

3. Letter from DX-4 to Dispensers Optical Service, Las Vegas, NV, DX4-98-001 Defining Signature Authority for Safety Glasses Purchase, dated January 6, 1998.

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SECTION VII
REMOTE AREA WORK

PURPOSE

This section contains information on the reporting requirements and support available to personnel involved in remote area operations at the NTS, areas adjacent to the NTS or other areas as required. Some organizations at Los Alamos have also published internal SOPs for remote area operations (e.g., EES Division).

PROCEDURES

To ensure that the DX-4 Operations Team obtains all information about remote area operations, **the person planning the work must fill out a Field Work Plan** (*Form 1642,* available at http//enterprise. lanl.gov/forms/1642.pdf). Submit it to the DX-4 Operations Team by email to ntsops@lanl.gov, or fax to **702-295-3414** at least a week before the planned expedition. Provide information well in advance of arrival date to ensure availability of necessary support services.

RESPONSIBILITIES

In addition to the normal safety responsibilities of line organizations for their personnel, the Los Alamos TGD is responsible for safety coordination of all Los Alamos employees and projects at the NTS sponsored by, or that utilize assets and support from, the Los Alamos Test Group. The TGD delegates to the DX-4 Operations Team the responsibility for coordinating safety procedures for travel to and work in remote NTS and adjacent areas.

DX-4 Operations Team (NTS)

On the basis of the information provided by the Field Work Plan, the DX-4 Operations Team will:

- Make arrangements for special equipment and vehicles.
- Obtain keys and permission for access.
- Establish communications/communication checks.

- Track the progress of projects/personnel to ensure that contacts are made and emergency response is provided as required.

- Inform project personnel of the day-to-day requirements that they must follow throughout the duration of the project.

Using Group/Organization

The person in charge of each project is responsible for:

- Contacting the DX-4 Operations Team, CP-45, upon arrival at NTS to confirm arrangements.

- Ensuring that each member of his/her group receives briefings on safety procedures and the emergency notification information described in this manual

EMERGENCY RESPONSE

Based on the location and the type of project, the DX-4 Operations Team will alert the NTS agencies that will be involved should an emergency arise.

At NTS, medical, fire, search and rescue, and air rescue services are *moderately* available. (Air rescue from Las Vegas may be the only service available at times.) In areas adjacent to NTS, similar services are available but limited, and longer response times must be anticipated. The DX-4 Operations Team will obtain the emergency support information required for areas outside NTS upon request.

Communication checks on a twice-daily basis with the DX-4 Operations Team are normally required. **Failure to report within a reasonable period of time will result in the DX-4 Operations Team initiating an Emergency Response.**

EQUIPMENT

Radios

The DX-4 Operations Team provides communications equipment. GSA/DOE-owned vehicles are generally radio equipped. Portable units are available through the DX-4 Operations Team and should be used whenever projects require nonstandard transportation (walking).

Vehicles

The type of terrain expected should dictate the type of vehicle(s) required. Most of the roads in the NTS are primitive requiring four-wheel drive vehicles. The DX-4 Operations Team will obtain the required vehicles. It is highly recommended that two appropriate vehicles be used for remote work. This ensures a safe return in event of a vehicle problem. Every vehicle should be equipped with a first aid kit, a portable radio to back up the vehicle radio, and pioneer equipment.

Emergency Kits

The DX-4 Operations Team will issue vehicle emergency kits upon request.

Pioneer Equipment

Shovels, tools, water containers, and other miscellaneous equipment can be obtained from the LANL Warehouse, CP-100.

OFF-SITE OPERATIONS

The experience and structure of the NTS-based LANL DX-Division organizations with leadership from the Test Office are available provide the necessary support to any LANL organization that intends to conduct field operations at remote sites other than the NTS. The logistics involved in conducting remote operations can be overwhelming when dealing with other agencies, local/state/ government laws; determining availability of basic resources; and,

ensuring the safety, health and well being of LANL personnel in the field.

OFF-SITE RESPONSIBILITIES

Test Office

The Test Office should be contacted as early as possible when an organization intends to conduct remote field operations. The TGD will assess the needs of the using organization and assign work to those NTS based organizations that will be involved. The work/support assignments depend on the type of work involved.

DX-4 Operations Team

It is expected that the DX-4 Operations Team would be involved in most operations because of their experience in dealing with outside agencies and their ability to obtain the many types of support services usually needed.

Other Teams

Work assignments by the TGD will be made according to the needs of the requesting agency. For example, if lasers were to be used by the testing organization, the ESH-12/NTS Support Team is available to assist in preparing the required permits.

OFF-SITE EQUIPMENT

All equipment used, whether it is PPE, test instruments, communications gear, and general support gear should comply with LANL safety policies.

OFF-SITE EMERGENCY RESPONSE

The DX-4 Operations Team will make the necessary arrangements for Emergency Management. This includes contacting local officials for information on available services, preparing emergency communications procedures for the involved LANL personnel, issuing on-call lists, and, ensuring that involved personnel have received needed safety training.

REFERENCES

1. AR 15-1, Section 15: Field Safety, dated July 19, 1991.

2. http://www.nv.doe.gov/nts/facilities.

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SECTION VIII
OPERATIONS – NTS FACILITIES

PURPOSE

The facilities in use at the NTS by LANL/LLNL/SNL have been developed to conduct various experimental programs and related activities mandated by the DOE/NV in support of National Programs. This section describes the major facilities in use to support these programs. Further information about NTS can be found on the DOE/NV web page, http://www.nv.doe.gov.

RESPONSIBILITIES

The TGD, TD and facility managers are assigned facility responsibilities as delegated by DOE/NV through the LANL Director's Office (See Section 1, References, for authorizations). The facility manager is responsible for safety coordination, construction oversight, and may provide technical direction to the M&O contractors and turning over (Beneficial Occupancy) of a specific test area in the facility to the testing organizations, headed by a TGD/TD, for their work related to program activities. The TGD/TD may in turn delegate certain safety responsibilities to other LANL organizations for specific operations/areas.

FACILITY DESCRIPTIONS

U1a Experimental Facility

Access Requirements

Individuals requiring access to the U1a Complex must have a TLD badge, PPE, Underground Worker Safety Training, radiological training (GERT, Rad Worker I, or Rad Worker II, depending on activity), and/or be sponsored by the Complex Manager for an official visit. The Complex Manager may be contacted at **295-3439.**

Facility Description and Usage

The U1a Facility, an underground experimental complex located in Area 1, of the NTS, supports the SCE projects for LANL and LLNL. The SCEs are conducted in support of the Stockpile Stewardship Program and the UGT Readiness

Program in the event a return to underground nuclear testing is required.

The test data obtained helps maintain the reliability of the nuclear weapons stockpile by allowing scientists to gain more knowledge of the dynamic properties of new and/or aging nuclear materials.

The Complex, located in Area 1 of the NTS, is approximately 90 miles northwest of Las Vegas. The complex, consisting of horizontal tunnels about one-half mile in length mined at the base of a vertical shaft approximately 960 feet beneath the surface, was mined in the late 1960s for an underground nuclear test, which was later canceled. In 1988, the shaft was reopened, and a 1,460-foot horizontal tunnel was mined south at the 962-foot level of the shaft. In 1990, the LeDoux nuclear test was conducted in the tunnel.

The vertical shaft is equipped with a mechanical hoist for personnel and equipment access while another vertical shaft about 1,000 feet away provides cross ventilation, instrumentation, utility access, and emergency egress. On the surface, there are several temporary buildings and instrumentation trailers. The most distinguishable landmark at the complex is the white air building, which was used for experiment assembly during LeDoux. The complex provides a high degree of safety for NTS workers and the public and minimizes environmental impacts. In Section 1 Appendix, on Page A-3, there is an aerial view of the U1a Complex.

Device Assembly Facility (DAF)

Access Requirements

Individuals requiring access to the DAF must have a TLD badge, PPE, GERT, DAF GET and/or be sponsored by the DAF Manager for an official visit. This is a Material Access Area with specific personnel load limits and is not open for visits that are not operationally required. The Complex Manager may be contacted at **794-5231.**

Facility Description and Usage

ESA is the principal LANL user of the DAF. The management of this facility is a joint operation between LLNL and LANL. Management is a shared responsibility where, on a biannual rotational basis, the duties of Manager and Assistant Manager are alternated, i.e., in a given year one Laboratory supplies the Manager, the other supplies the Assistant Manager.

Operations or projects will have a supervisor and follow the operation procedures/limits established in formal documentation.

The 100,000-square-foot nuclear explosive Device Assembly Facility (DAF) is located in Area 6 of the Department of Energy's NTS. Built at a cost of approximately $100 million, the DAF is expected to become a centerpiece for innovative alternative uses of the test site. The DAF's original purpose was to consolidate all nuclear explosive assembly functions, to provide safe structures for high explosive and nuclear explosive assembly operations, and to provide a state-of-the-art safeguards and security environment. The principle mission today is support of Stockpile Stewardship and the Sub-critical Experiment assemblies. The DAF has five assembly cells, four high bays, three assembly bays, five staging bays, a component testing laboratory, two shipping and receiving buildings, two decontamination facilities, three small vaults, an administration building, alarm stations, an entry guard station, and a mechanical and electrical support building.

The main facility is covered with a minimum of five feet of earth. The major operating facilities, assembly cells and bays, the radiography bays, and the shipping and receiving building have bridge cranes. The five assembly cells have rotating polar bridge cranes. The DAF's activities comply with the National Environmental Policy Act, and all applicable federal, state, and local regulations. Each assembly cell is designed and tested to undergo an explosion from a maximum high explosive device without injury to personnel outside of the cell. Gravel covers are designed to minimize release of nuclear material in the

unlikely event of an accidental explosion. In Section 1 Appendix, page A-4, there is an aerial view of the DAF.

Hazardous Material Spill Center

Access Requirements

The type of activity governs access limitations. Area closures occur for normal operations. There are reading requirements and a Standard Operations Policy for normal access. The point of contact is through the DOE/NV Office at **702-295-6305**.

Facility Description and Usage

The HAZMAT Spill Center, located at the NTS in Area 5 (Frenchman Flat) near Mercury, Nevada, is a unique, one-of-a-kind facility built to conduct hazardous materials testing and training under controlled conditions can accommodate both large- and small-scale testing. The HAZMAT Spill Center EIS allows live releases of hazardous materials for training purposes, field-test detection, plume dispersion experimentation, and equipment and materials testing. Tests are conducted from April through September, weather permitting.

With the HAZMAT Spill Center's unique release permits and spill rates up to 28,000 gallons per minute and spill volumes expandable to 75,000 gallons, the HAZMAT Spill Center is capable of the following:

"Live" HAZMAT Testing

Remote Sensing

Source Term Definition - Dispersion Modeling

Big Explosives Experimental Facility (BEEF)

Access Requirements

The type of activity governs the access and training requirements for this facility. Contact the Facility Manager at **295-6327.**

Facility Description and Usage

The Big Explosives Experimental Facility (BEEF) is a hydrodynamic testing facility located in Area 4, of the NTS. The need for the BEEF site originated when, due to community encroachment near the LLNL facility in Livermore, California, DOE was no longer allowed to perform large high explosive experiments at Site 300, The Shaped Charge Scaling Project. Therefore, the NTS was selected as a location to continue these large, high explosive experiments. Two earth-covered, two-foot thick steel reinforced concrete bunkers, built to monitor atmospheric tests at Yucca Flat in the 1950s, were located and found to be ideally configured. The facility consists of control bunker, camera bunker, gravel firing table, and associated control and diagnostic systems. The facility is used to safely conduct conventional high-explosives experiments using a test bed that provides sophisticated diagnostics such as high-speed optics and x-ray radiography on the firing table, while operating personnel are present in the bunker.

In order to conduct large, conventional high-explosive experiments on the site-firing table while operating personnel are present in the control bunker, it first had to be certified as safe. To achieve this, scientists conducted Popover—a series of high explosive (up to 7,800 pounds) tests, which were detonated 27-feet from the bunker's buried outer wall. The test data was used to develop an effects profile that defined the relationship of the high-explosive charge size and detonation point to blast effects, such as overpressure, bunker wall strain, dynamic response (acceleration), and noise amplitude. Together these results demonstrated that the bunker would provide a safe working environment.

BEEF plays a large role in accumulating data supporting Stockpile Stewardship, along with a variety of new experimental programs that will expand the nation's non-nuclear experiment capabilities. This facility complements the U1a complex and other DOE hydrodiagnostic facilities.

MINOR FACILITIES

Area 16 Tunnel (Area 12 Tunnels)

Access Requirements

The Defense Threat Reduction Agency (DTRA), should be contacted regarding any planned activities in Tunnel 16, for availability, training, and scheduling. The DTRA Office in Mercury, **702-295-7100**, can provide more information.

Facility Description and Usage

Operated by DTRA, the NTS Area 16 Tunnel is generally used for weapons effects testing. Other tunnels located in Area 12, have been deactivated, but may be used for various projects related to military operations. Contact DTRA for more information.

X-Tunnel, Area 25

Access Requirements

The Site Management Division (SMD) should be contacted regarding any planned activities in X-Tunnel, for availability, training, and scheduling. The SMD Office in Mercury, **702-295-1760**, can provide more information.

Facility Description and Usage

X-Tunnel, located in Area 25, is generally used for de-mill and other DOD projects. Contact SMD for information.

Low-Level Waste Storage Area, Area 5

Access Requirements

The Area Manager should be contacted regarding any planned activities in this area, for availability, training, and scheduling. The telephone number is **702-295-1564**.

Facility Description and Usage

The Low-Level Waste Storage Area, located in Area 5 (Frenchman Flat), has been used for various measuring and packaging projects.

REFERENCES

DOE Internet Path, http://www.nv.doe.gov.

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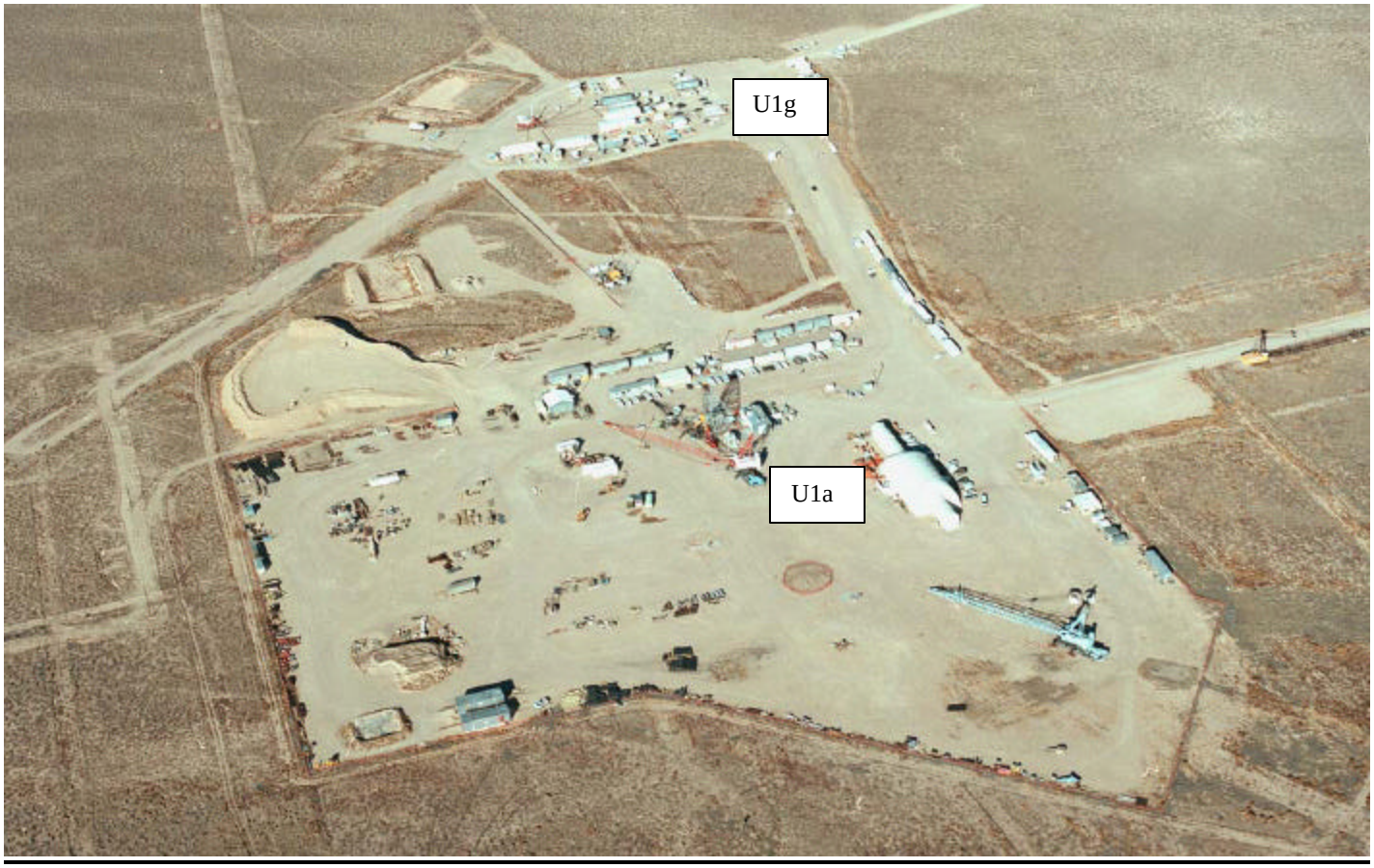

U1A/U1G AERIAL VIEW

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U1a AIR BUILDING and HEADFRAME

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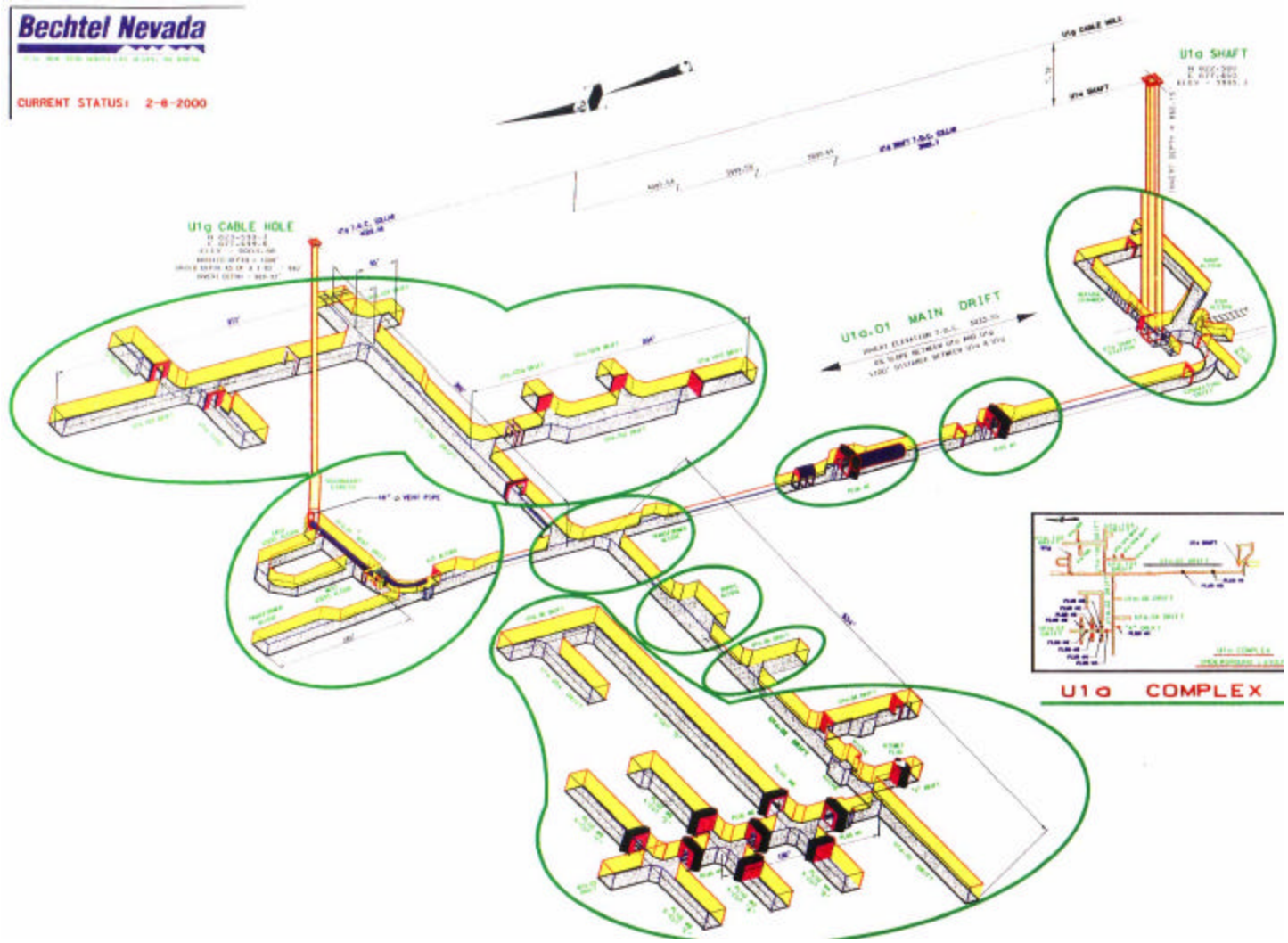

U1a UNDERGROUND LAYOUT

DEVICE ASSEMBLY FACILITY (DAF)

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SECTION IX
RADIATION SAFETY

PURPOSE

The purpose of the LANL/NTS radiation protection program is to protect employees, the public, and the environment from the harmful effects of radiation, and maintain radiation doses as low as reasonably achievable.

RESPONSIBILITIES

Test Group Director

The TGD is responsible for the radiological safety of LANL activities in Field Test Operations.

Resident Manager

The RM approves the NV/YMP Radiological Control Manual (DOE/NV/11718-079) and the Radiation Protection Program (DOE/NV/11432-203) Plan, and participates in the Site-Wide ALARA committee.

Individuals

Each person involved in radiological work must demonstrate responsibility and accountability through an informed and cautious attitude toward radiation and radioactivity.

LANL ESH-12/NTS Support Team

The LANL ESH-12/NTS Support Team provides or coordinates the technical and radiological support resources required to perform radiological work safely at the NTS. Call 702-295-7620 with any questions or for any support you need.

NV/YMP RADIOLOGICAL CONTROL MANUAL

The NV/YMP Radiological Control Manual provides the basis for radiation protection and conduct of radiological work at the NTS. It is an excellent resource for work planning.

ADMINISTRATIVE CONTROL LEVEL/DOSE LIMIT

An Administrative Control Level (ACL) dose equivalent of 500 mrem, a factor of ten below the DOE annual limit of 5000 mrem, has been established for radiological workers at the NTS. The ACL is based on the sum of internal and external radiation dose equivalent received by the individual during the year. The NTS ACL may be exceeded only with written authorization from the RM.

ALARA POLICY

There should not be any occupational exposure of workers to ionizing radiation without the expectation of an overall benefit from the activity causing the exposure.

The LANL/NTS policy is to conduct operations in such a way that radiation exposure to LANL employees, employees of other organizations, and the public be kept As Low As Reasonably Achievable.

The trigger levels requiring an ALARA review of a project or activity are included in the Radiological Control Manual (Article 312.4). An ALARA review determination is completed by LANL/ESH-12 whenever a Radiological Work Permit is generated. If the activity involves other organizations in addition to LANL, a Site Wide ALARA Committee review is required if the trigger levels are exceeded.

DECLARED PREGNANT WORKERS

A radiological worker is not considered to be pregnant until she notifies her supervisor in writing. If you are a declared pregnant worker, notify the LANL/ESH-12 NTS Support Team. LANL requirements for declaration of pregnancy are contained in The LANL Radiological Control Manual (LM107-01.1) Article 215.

NTS DOSIMETRY

LANL personnel require an NTS dosimeter only to enter Controlled Areas and radiological areas, as specified, including DAF and the

underground U1a Complex. Additional dosimetry may be required in some radiological areas at NTS. Dosimetry requirements will be posted. **Do not wear a dosimeter from any other facility** (including LANL) at the NTS.

Temporary or new permanent NTS dosimeters are issued at the JTO Travel Office, Building 600 in Mercury, DAF, or at the ESH-12/ NTS Support Team Office, Building CP-214. If these facilities are not open, a dosimeter can be issued at the BN Dosimetry Office, Building 650 in Mercury, or the BN Health Physics Department, Area 6, Building 72. A temporary or new permanent dosimeter can be issued at the DOE North Las Vegas Support Facility, Building A-4, Room 5052. Dosimeters may be exchanged at any of these facilities.

Travelers **must** turn in their NTS dosimeters in Mercury at Building 600, or with the DX-4 Operations Team at CP-45. Temporary dosimeters **must be** turned in at the end of your visit. NTS dosimeters are exchanged quarterly.

RADIOLOGICAL POSTINGS

Radiological postings are used to alert personnel to the presence of radiation and radioactive materials. Areas controlled for radiological purposes will be posted with a warning sign displaying a magenta (or black) standard three-bladed radiological warning symbol on a yellow background. Black is generally used at the NTS due to fading of magenta in the sun. The radiological postings are described in the NV/YMP Radiological Control Manual Chapter 2, Part 3.

The NTS contains a number of Controlled Areas. A map of the Controlled Areas is included in the Training Section of this Manual. General Employee Radiological Training is required for access off the paved roads in these Controlled Areas. The Controlled Areas at the NTS are posted as follows:

CONTROLLED AREA
THIS AREA IS CONTROLLED FOR THE PURPOSE OF
LIMITING ACCESS TO RADIATION OR
RADIOACTIVITY,
GENERAL EMPLOYEE RADIOLOGICAL TRAINING (GERT) IS
REQUIRED FOR ACCESS

The posted areas of the NTS are shown in the Appendix of this section.

RADIOLOGICAL WORK PERMIT (RWP)

The BN Radiological Work Permit form (BN-0103), Figure 3-1 in the NV/YMP Radiological Control Manual, is used throughout the NV system. Most work in radiological areas at the NTS is controlled by an RWP. RWPs are prepared for LANL activities at the NTS by the ESH-12/NTS Support Team.

CONTROL OF RADIATION SOURCES AT THE NTS

Radiation sources must be registered with the ESH-12/NTS Support Team when they arrive at the NTS. The ESH-12/NTS Support Team and the LANL Warehouse must be informed before a radiation source is moved from one location to another on the NTS, or removed from the NTS.

RADIATION PRODUCING DEVICES

The ESH-12/NTS Support Team must be notified before a radiation-producing device is shipped to the NTS. An X-ray safety survey must be performed by ESH-12 before a radiation-generating device is operated by LANL at the NTS.

RADIOLOGICAL SURVEY of MATERIALS AND EQUIPMENT BEFORE REMOVAL FROM RADIOLOGICAL AREAS, CONTROLLED AREAS, OR THE NTS

A radiological survey of each item must be completed before it is removed from a Contamination, High Contamination, or Airborne Radioactivity Area at the NTS. In addition, a radiological survey may be required before removing items from a Controlled Area or other parts of the NTS. Contact the ESH-12 /Support Team or the LANL Warehouse to arrange for a radiological survey before removing materials or equipment from radiological areas or the NTS.

REFERENCES

1. NV/YMP Radiological Control Manual (DOE/NV/11718-079).
2. Radiation Protection Program Plan (DOE/NV/11432-203).

OPERATIONS MANUAL

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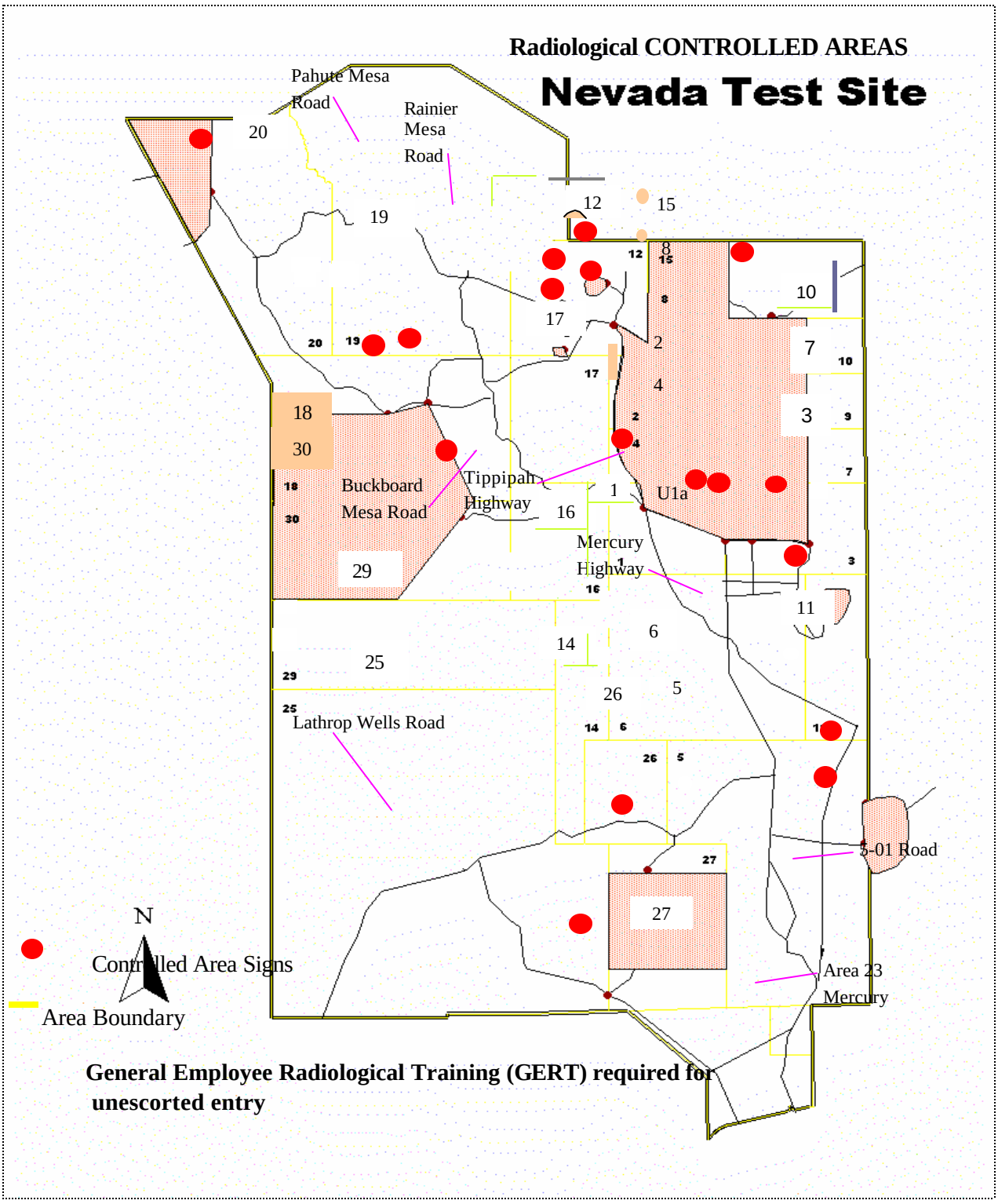
SECTION IX APPENDIX
RADIOLOGICAL CONTROLLED AREAS



OPERATIONS MANUAL

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SECTION X
ELECTRICAL SAFETY

PURPOSE

Electrical safety in a Field Test environment is not as easy to maintain as it is in a fixed laboratory setting. Workers must exercise particular care because several organizations may be working concurrently or intermittently with potentially hazardous electrical equipment in an unfamiliar and stressful environment. The purpose of this section is to point out sources of information on electrical safety and unique requirements for Field Test situations.

RESPONSIBILITIES

Test Group Director (TGD)

The TGD and the DX-4 Engineering Team Leader will review and approve general electrical safety guidelines for use at NTS. Any test related procedure which falls outside written guidelines will be presented to the TGD for approval prior to writing the special work permit (SWP) or new standard operating procedure (SOP).

DX-4 Field Engineering Team

The DX-4 Field Engineering Team is responsible for the LANL Electrical Safety Program at the NTS. This responsibility covers the provision for an electrical engineer for each activity and specific contractor oversight responsibilities. The DX-4 Field Engineering Team will participate in SCE planning and monitor daily operations to ensure experimenters stay within the standards and guidelines provided by applicable LANL documents defined by the ISMD, the DOE Electrical Safety Manual and national codes (see References).

DX-5 Experimental and Diagnostic Group

The Experiment and Diagnostics Group is responsible for safety requirements in zero room complexes and associated experimental areas. In coordination with the DX-4 Field Engineering Team, DX-5 ensures that proper electrical safety procedures are being followed during fielding operations.

DX-7 Field Test Command, Control, and Communications Team

The Command, Control and Communications Team is responsible for the integrity of the timing and firing (T&F) systems, as well as controlling and monitoring various power systems. The DX-7 Team coordinates closely with DX-4 and DX-5 Teams and other involved organizations to ensure an integrated program for signals, monitors and power systems.

ESH-12/NTS Support Team

The Radiation Protection Services NTS Support Team will assist groups at the NTS with hazard analysis and coordination of the self-assessment program programs. They work closely with the DX-4 Field Engineering Team to determine how to best provide for adequate electrical and safety protection in and around test complexes. When appropriate they consult with Los Alamos-based organizations for their expertise in various areas, e.g., the ESH-5 Industrial Hygiene and Safety Group.

Support Contractors

Each support contractor is responsible for providing the proper equipment, training and supervision to safely accomplish construction requirements. Electrical safety standards provided by DOE, BN and the Laboratory will be enforced, and, where there seems to be conflicting requirements, the DX-4 Field Engineering Team will coordinate the resolution.

LANL Employees

Employees are responsible for complying with occupational safety, health, and fire protection standards that apply to their own actions and conduct. This includes immediate action to eliminate unsafe conditions or practices and also prompt reporting to management.

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SECTION X
ELECTRICAL SAFETY

PROCEDURES

All work involving electrical equipment, components, and systems will be performed in a safe manner and according to National Codes, Occupational Safety and Health Act (OSHA), DOE Orders and/or SOPs, and site-specific Hazard Control Plans or SOPs/SWPs.

Compliance with Safety and Lockout/Tagout procedures issued by NTS-based Maintenance and Operations contractors, e.g., BN, is always required and mandatory.

TRAINING

Electrical safety training is crucial to safe work when using electrical system. LANL has developed a comprehensive training program both in Los Alamos and at the NTS.

ENERGIZED WORK

Take every precaution to avoid working in positions that (1) may cause body parts to come into contact with energized or moving equipment or (2) may result in a fall or injury. Make sure no part of the body (the head especially) can accidentally come into contact with energized equipment. Avoid wearing rings, metallic watchbands, or other jewelry when working with electrical equipment or in the vicinity of strong, induced fields.

Wear the appropriate safety equipment when working with energized equipment to include face protection, aprons and/or gloves as necessary.

When working on potentially hazardous energized equipment, follow an approved Hazard Control Plan or SOP. If no Hazard Control Plan or SOP covers the task, adhere to the LANL/BN procedure for Lockout/Tagout. Only qualified employees who have been trained to work safely with test instruments and equipment on energized circuits shall be permitted to perform testing. When working with possibly energized equipment, a second person (called a **"Safety Watch"**) capable of helping in an emergency must be present.

The following are Safety Watch responsibilities and qualifications:

- CPR Training (certified).
- Thorough knowledge of the location and use of emergency-shutdown push buttons and power disconnects.
- Thorough knowledge of the specific working procedure to be followed and the work to be done.
- Monitoring the work area for unsafe conditions or work practices and the ability to correct them appropriately.
- Maintaining visual and audible contact, and facilitating removal of injured personnel, if possible.

WORK SPACE

Working space around electrical enclosures or equipment shall be adequate for all anticipated maintenance and operations, including safety of personnel under emergency conditions and rescue of injured personnel.

Typical examples of equipment requiring access and clearance requirements include panel boards, switches, circuit breakers, controllers, and environmental controls. Clearances for this type of item will comply with the standards of Art. 110-26 of the National Electric Code, NFPA 70.

Work space requirements:

- Practice good housekeeping and cleanliness.
- Identify potential hazards and anticipate problems.
- Document work (especially safety related work) and know applicable emergency procedures.

EQUIPMENT

Manufacturers and fabricators should furnish nationally recognized testing laboratory label, e.g., Underwriters Laboratory, and a circuit diagram packed with their equipment. The operating instructions should explain the associated hazards and give directions for the operation of the safety devices for the equipment.

Examine electrical equipment as follows:

- Periodically for deterioration resulting from normal use.
- After any occurrence (planned or unplanned) that could cause changes in the system or equipment
- Upon reassignment of systems or equipment.

When working with electrical equipment:

- Label principal disconnects prominently and clearly, showing source and load.
- Regard all floors as conductive and grounded unless covered with well-maintained, dry rubber matting of a type listed for electrical work. Regard all concrete, brick, or tile walls as conductive and grounded.
- Use only one hand to work on circuits or control devices when possible. Use the back of the hand when you must touch electrical equipment (for example, to check for overheated motors). If accidental shock were to cause muscular contraction, you would not "freeze" to the conductor.
- If extension lights are required in damp places or inside metal vessels, use a flashlight or low-voltage units. Use double-insulated tools or ground fault interrupters in "massive ground" areas where a shock involving the entire body can occur.
- Do not store flammable liquids near electrical equipment. Flammable liquids shall not be brought into an underground environment without the proper MSDS review and approval.

OUTDOOR LOCATIONS

Operations in outdoor locations are a fact of life for Field Test. Contact the DX-4 Field Engineering Team for assistance in configuring equipment that will be exposed to the elements and for power distribution. The following is required:

- Use weatherproof boxes and fittings outdoors. In wet places or "massive ground" areas, use "double-insulated" portable electrical equipment (if available). If double-insulated equipment is not available, use circuits equipped with ground fault current interrupters.

- **Lockout/Tagout procedures** become even more critical as work locations become more isolated. Prior to starting work (especially in a remote location), verify any lockout/tagout requirements with DX-4 Field Engineering.

- Review the **Safety Watch** responsibilities and qualifications above before leaving for a remote location where energized work might be involved.

- Cease all outdoor work during periods of nearby electrical storm activity. Take shelter, preferably in vehicles, until the electrical storm passes. High relative humidity increases the danger of electrical shock.

FIELD TRAILERS

Field trailers offer unique situations with respect to electrical safety. Contact the DX-4 Field Engineering Team when planning to perform electrical work. The following general rules apply to trailer work:

- For work on an energized chassis (in the trailer), remove it from the rack, place it on an insulating surface and, when possible, see that it is supplied with power through an isolation transformer.

- Bond exposed metal to the trailer frame.

- As a regular routine:

  1) Replace defective extension cords (NTS-supplied cords must have current color-coded inspection markings).

  2) Check ground connections on hand tools.

  3) Check isolation transformers for ground leakage.

REFERENCES

1. NATIONAL ELECTRICAL CODE (NEC), NFPA 70 (latest version).

2. OCCUPATIONAL SAFETY AND HEALTH ACT, Title 29 CFR, 1910 & 1926, Subparts S & K, V respectively.

3. U.S. Department of Energy Electrical Safety Manual.

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SECTION XI
LASERS AND LASER SYSTEMS

PURPOSE

Lasers and laser systems are used at the NTS for various tasks, including surveys, alignment of experimental hardware, and technical experiments. All work with lasers must be designed and conducted in a manner that precludes personnel exposures, particularly eye exposure, to the beam or its reflections. This section contains the current responsibilities, information for laser registration, laser safety operating procedures, summary table of operational controls, required forms, and training.

RESPONSIBILITIES

Laser or Laser System Users

Before operating any lasers or laser systems at any Nevada facility, e.g., the North Las Vegas Facility or the NTS, that are Class IIIb or IV, the individual or using group is responsible to:

- Submit the required documentation for laser or laser system registration to the LANL ESH-12/NTS Support Team Laser Safety Officer (LSO), **MS J900 (NTS),** FAX**: 702-295-7378,** or **E-mail: es&hnts@lanl.gov**.

- Develop and submit a written laser safety operating procedure to the LANL ESH-12/NTS Support Team LSO, at the address above.

- Implement administrative access controls and provide interlocked laser access control points.

- Operate the laser only in conjunction with appropriate warning lights and postings that are consistent with ANSI Z136.1-1993.

- Contact the LANL ESH-12/NTS Support Team LSO when relocating the laser or laser system, to determine if alternate control measures are required.

LANL ESH-12/NTS Support Team LSO

The LSO will:

- Assist all LANL laser or laser system users with the registration process. This includes forwarding registration documentation to the BN ES&H LSO.

- Provide information or guidance to LANL laser or laser system users regarding the appropriate laser safety requirements.

- Determine if alternate control measures are required when the relocation of the laser or laser system is necessary.

REGISTRATION

The individual or group responsible for the laser or laser system must submit a completed BN LASER REGISTRATION form, BN-0209, along with a laser safety operating procedure to the ESH-12/NTS Support Team LSO.
The ESH-12/NTS Support Team LSO reviews the submitted package from the laser or laser system user for completeness and accuracy, then forwards it to the BN LSO for further review and approval by signature. Upon signed approval of the registration form, the BN LSO returns a copy with cover letter that specifies the approved location for use of the registered laser or laser system. A copy is also sent to the ESH-12/NTS Support Team LSO.

LASER SAFETY OPERATING PROCEDURE (LSOP)

The LSOP must include the following information:

- Description of laser or laser system.

- Laser labels.

- Laser master controls **(key controls for Class IV)**, and how they are administratively controlled.

- Protective equipment requirements.

- Medical surveillance program.

- Laser operator qualifications, and a list of qualified operators.

- Warning light/postings, location, and how they are administratively controlled.
- Lockout/tagout provisions for work on fibers.
- Laser **Controlled Area** administrative access controls, including sweeps and training requirements.
- Laser system interlocks, and the type of beam/shutter, or power drop (**Class IV**).
- Laser housing interlocks (**Class IIIb and IV**)

The LSOP shall be approved by the LANL or LLNL LSO for the U1a Complex, as appropriate. Copies of the approved LSOP and BN NTS laser registration are provided to the LANL U1a ES&H Coordinator before the laser is operated at the U1a Complex.

OPERATIONAL CONTROLS

The following table summarizes the operational controls and their requirements based on class of laser.

LASER CLASS	LSOP REQUIRED	NTS REGISTRATION WITH BN LASER REGISTRATION OFFICER REQUIRED	FLASHING RED BEACON AND GREEN/ AMBER/RED WARNING LIGHT PANEL AT LASER CONTROLLED AREA ACCESS POINT	POSTING IN ACCORDANCE WITH ANSI Z136.1-1993 REQUIRED	ADMINISTRA-TIVE ACCESS CONTROL REQUIRED	INTRLOCKED LASER ACCESS CONTROL POINTS REQUIRED
IIIa	No	No	No	Yes	No	No
IIIb	Yes	Yes	Yes	Yes	Yes	Yes
IV	Yes	Yes	Yes	Yes	Yes	Yes

FORMS

The only form required for laser safety at the NTS is the LASER REGISTRATION Form BN-0209.

TRAINING

Laser safety training is required for all laser operators and individuals who work within the nominal hazard zone of Class IIIb and IV lasers. These individuals include operators, technicians, engineers, maintenance/service personnel, etc. The training ensures that personnel are knowledgeable of the potential hazards and the control measures associated with the lasers in use. The training should cover beam and non-beam hazards.

Training provided by BN at the NTS is arranged through the LSO. Coordination needs to be made by the individual to ensure credit is entered into the Employee Development System (EDS).

REFERENCES

ANSI Z136.1-1993.

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SECTION XII
HIGH EXPLOSIVES

PURPOSE

High explosives (HE) are handled at the NTS by LANL personnel in conjunction with SCE assembly, testing of firing systems, and other very limited, highly regulated activities.
Organizations who work at NTS with HE must comply with the DOE Explosives Safety Manual (DOE M 440.1-1). They must also prepare a SOP or Hazard Control Plan for their operation prior to bringing explosives onto the NTS and submit a monthly explosives inventory report to the TO. The TGD/TO and the ESH-12/NTS Support Team must approve all special SOPs at NTS that involve HE.

All organizations performing work with explosives in LANL controlled areas must comply with the provisions of this manual and all LANL procedures governing work with explosives (unless specifically exempted). Likewise, all LANL personnel performing work in areas controlled by other organizations, e.g. LLNL at the BEEF Facility, must also comply with all pertinent regulations of that organization.

RESPONSIBILITIES

Test Group Director/Test Director (TGD/TD)

At the NTS, the TGD/TD must be notified before the commencement of any operation that involves HE. The TGD/TD must specifically grant permission for an organization to deviate from an approved SOP. Deviations in relation to ESA operations at the DAF may involve further consideration from DOE SHD.

ESA-Division

ESA-Division is responsible for the unpacking, inspection, assembly, disassembly and radiography of SCE packages at the NTS. They maintain procedures consistent with LANL requirements on the safe handling of HE and related systems.

DX-4 Operations Team

The LANL Warehouse, under DX-4 Operations Team oversight, is responsible for the on-site transportation of HE at the NTS. The DX-4 Operations Team shall conduct their operations in accordance with the DOE Explosives Safety Manual. The ESH Division will assist the DX-4 Operations Team in the conduct of a vehicle inspection and driver education program.

DX-7 Field Test Command, Control, and Communications Team

The DX-7 Field Test Command, Control, and Communications Team is authorized to transport small quantities of Class C explosives [UNO 1.4].

Other Organizations

Experimenters and others requiring the use of explosives at the NTS will coordinate with the DX-4 Operations Team and the TO as a function of program development to ensure storage and transportation are available or possible. Generally, all timing and firing of explosives will be coordinated through the DX-7 Field Test Command, Control, and Communications Team. The LANL ERC must approve all explosives used at the NTS. DX and ESA Divisions maintain a list of approved explosives. The ERC can also evaluate non-listed explosives to determine their suitability for use.

PROCEDURES

Two-Man Control

Two-man control is mandatory for any work involving HE. Two-man control at the DAF will comply with DOE nuclear surety orders and applicable ESA Division SOPs.

Transportation

In order to promote safety, general transportation practices will closely follow the standards prescribed by 49 CFR. This includes, as

much as possible, the proper packaging and labeling for intrasite transportation. Specific requirements for transport of explosives on the NTS are:

Electro-Explosive Devices (EED)

Class C or (UNO 1.4) or explosive devices that are in approved explosives containers, or are in the non-propagating containers in which they were received from the vendor, can be transported in government sedans or other light-duty vehicles. It is not necessary to post placards or flags on the vehicle when the gross weight of the explosive articles is less than 1000 pounds.

When HE is transported at the NTS in vehicles of rated capacity for the load. The vehicles must be equipped with:

- Tie-downs for the load.
- Four explosives placards.
- Red flags mounted front and rear.
- Two serviceable fire extinguishers (one inside and one outside the cab) each with a rated capacity of at least 2A:10BC.
- An effective "spark and flame" arresting device in the exhaust line.
- Approved warning lights.

Vehicle Inspections

Vehicles must be inspected at intervals not to exceed six months. Inspections will be recorded and the inspection sheets retained for two inspection periods. Corrected deficiencies will be annotated. Vehicles used to transport explosives shall be properly equipped and maintained.

Vehicle Operators and Driving Requirements

Vehicle operators must and licensed for the type of vehicle used.

While transporting HE, speeds may not exceed 45 mph (the maximum speed permitted for vehicles transporting high explosives).

Laboratory-approved shipping and handling containers shall be used for transporting explosives. The containers shall be secured to the transporting vehicle with a Laboratory-approved tie-down. Non-associated items are not to be transported in the same cargo compartment with high explosives.

If the truck is to be parked inside a building, make sure that no exposed explosives are, or will be present in the same room while the truck is there.

A convoy of security vehicles (some with flashing blue lights) will accompany any vehicle transporting nuclear explosives on the NTS. The convoy will also contain vehicles carrying LANL employees who are involved in the assembly and/or installation of the HE, and, when necessary, a member of the ESH-12/NTS Support Team.

Shipments of explosives leaving the NTS must be coordinated with the Los Alamos NTS Warehouse, ESA-WMM, and the BUS Division Office in Los Alamos.

Handling and Working with HE

Maintain the stability of HE during all operations. Minimize

- Handling of HE.
- The distance an HE item will fall if accidentally dropped.

Do not lift or attempt to carry by yourself, an item that weighs more than 50 pounds. Two people may lift and/or carry items that weigh up to a 100 pounds if proper handholds are provided. Use mechanized handling to lift and carry all items that exceed the nominal weight limits or that can't be securely gripped. Be certain that the mechanized handling equipment is in good mechanical condition, has been periodically inspected, tested and that it has a rated capacity greater than the weight of the object to be handled.

Two or more persons must be present when HE is handled. Unless you are trained and certified in the use of the mechanized equipment, do not use it for handling HE.

Prohibitions

Smoke only in designated areas. Do not smoke within 100 feet of HE during unloading, loading, and transporting.

Eat only in properly designated areas.

Lightning

Cease work and evacuate the area if electrical storms approach the vicinity of work in progress that involves explosives or test devices containing explosives.

During SCE emplacement at U1a, it is the responsibility of the TGD/TD to determine when to stop work. The lightning detection system will be available to the TGD/TD from the DX-4 Engineering Team or DX-7 Field Test Command, Controls, and Communications Team. Work of this nature is not begun if a storm is anticipated or is in the vicinity.

Assembly/Disassembly/Radiography

The Device Engineer from the Weapon Engineering Group (ESA-WE) is responsible for the assembly, disassembly, or radiography of a test device. The Device Engineer must know the ESA-Division procedures in effect at NTS and at Los Alamos and be able to interpret them to meet circumstances at the NTS. The supervisor of the ESA-WE Engineer must approve any deviation from these procedures before work can begin. A copy of the applicable procedures must be maintained at the DAF. Standard assembly or disassembly is normally done at the DAF by ESA-WMM. Other organizations must coordinate use of this facility with the NTS ESA-WMM Facility Supervisor after approval from the TGD. Assemblies/disassemblies outside of the DAF must meet the safety standards of NTS-SOP-5412, which involves approval from the SMD.

Use of Boom Boxes

The DX-7 Field Test Command, Controls, and Communications Team will be responsible for the design, loading, wiring, and opening of the "boom box" used for detonator dry runs. Take the boom box and detonators to the test location a short time before they are needed. Keep the detonators in a non-propagating box during transportation and until they are placed in the boom box.

Only essential personnel from Los Alamos (no less than two) should be present when placing the detonators in the boom box. Only Los Alamos personnel may handle explosives. Make the final connection to the firing units after the boom box is closed. During the firing of the detonators, all persons will evacuate the vicinity to protected locations.

Continuity Checks

DX-7 Field Test Command, Controls, and Communications Team personnel will check the continuity of detonator and squib circuits using approved test equipment and procedures only. Approved equipment is shown on the Master Test List or is authorized in applicable nuclear explosives safety study documents. Persons certified for assignment to critical duties will perform these checks on nuclear explosives.

Storage

Explosives that are not being prepared for use or whose use is not imminent can be stored at the following locations (subject to the load limits at the storage facility):

- Area 6, Bunkers, CP-111, located inside LANL Warehouse, CP-100, fenced storage yard.

- Area 6, DX-7 Laboratory in CP-45. Squibs will only be stored in the DX-7 Lab at CP-45, when operationally required, and then for no more than one night. Confirm switches may be stored indefinitely in the DX-7 lab. Detonators or other HE devices **will not be stored** in the CP-45, DX-7 Lab.

- Storage of explosives at other locations requires the approval of the TGD/RM.

- Open only one container at a time in storage buildings (e.g., CP-111) to inspect or monitor the contents.

- Store low-energy explosive devices such as squibs and conventional electro-explosive devices in the containers in which they were shipped from the vendor, or, in approved non-propagating explosives containers.

Unused Explosives

Any unused explosive material must either be returned to Los Alamos in accordance with approved ESA-Division procedures or transferred to the BN explosives ordnance disposal representative. Contact the RM in the TO or the LANL Warehouse to coordinate the transfer.

Work Underground

All Los Alamos personnel performing work underground and all others performing work underground at Los Alamos controlled facilities must have current training in underground worker safety. See Section 3, TRAINING, for requirements.

REFERENCES

DOE Explosives Safety Manual, DOE M 440.1-1.

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SECTION XIII
PACKAGING & TRANSPORTATION

PURPOSE

Shipping and receiving, transportation, packaging and storage, (including the handling of hazardous materials) and miscellaneous issue of stock items are normally carried out by the LANL Warehouse at the NTS, **295-3710**. Organizations who wish to ship items to, from or transfer within the NTS will conform to formal guidelines. The TO will review deviations from written guidelines, which apply to the NTS, for submission to the DOE/NV Transportation Manager

RESPONSIBILITIES

Test Director

The Test Director will review and approve procedures for on-site transportation of hazardous materials. The Test Director will review the planning for movement or staging of special nuclear materials and high explosives (HE).

Nuclear Criticality Safety Officer (NCSO)

The DAF Supervisor is designated as NCSO. The NCSO provides information and criticality safety information for staging and transportation of accountable quantities of fissionable material at the Nevada Test Site.

Materials Management Group (BUS-4)

The Materials Management Group, BUS-4, is available to serve all Laboratory requesters in the shipping and transportation audit areas and is responsible for shipping materials to and from the Laboratory.

BUS-4 coordinates shipments from Los Alamos to the NTS. Delivery times and shipper responsibilities are covered in the LANL Property Management Manual.

LANL WAREHOUSE

The LANL Warehouse, CP-100, serves as a focal point for LANL materials management at the NTS. The LANL Warehouse provides shipping and receiving services for classified, hazardous and non-hazardous material. The LANL Warehouse maintains a limited stock inventory for issue. The LANL Warehouse may provide for short-term and limited long-term storage, special purchase services and some property accountability and tracking. Packaging and documentation services are also available. Call **702-295-3710**, for more information. The LANL Warehouse has personnel certified in the procedures for shipment of hazardous materials and maintains a small library of shipping regulations as well as MSDS.

The LANL Warehouse also provides a SAA for waste aerosol cans and other chemical waste. The LANL Warehouse makes arrangements for a radiological survey or provides the radiological unrestricted release form and the property removal authorization required by DOE/NV for all property leaving the NTS.

The shipper's responsibilities are outlined in the Property Management Manual, NTS On-Site Transportation Manual and the DOE/NV Handbook for On-Site Transportation Safety at the NTS. Shipment of classified or hazardous material will be coordinated with the LANL Warehouse as early in the test cycle as possible to preclude storage, packaging and transportation short fall. Include the TO in the notifications made before any fissionable material is shipped to the NTS. **All** material leaving field locations must be in the original configuration or in a configuration which will satisfy:

DOT Regulations (CFR 49, 100-180)
DOE Orders/NRC Directives
IAEA Requirements
IATA/ICAO Regulations
Laboratory Safety and Security Standards
Federal Motor Carrier Safety Regulations
DOE Explosives Safety Manual, DOE M 440.1-1

PROCEDURES

The LANL Warehouse is to be given advance notice of all freight or drop shipments to NTS. FAX a copy of the shipping manifest to the LANL Warehouse, CP-100**, FAX 702-295-3466**, prior to shipment.

CLASSIFIED AND UNCLASSIFIED SHIPMENTS

Listed below are the shipping addresses for Classified and Unclassified shipments to the NTS. It is recommended that the shipping organization check the Safeguards and Security Information Management System (SSIMS) for **current** shipping addresses in event of changes.

General Freight Shipping Address

University of California
Los Alamos National Laboratory
CP-100 Warehouse, Area 6
Mercury, Nevada 89023

Unclassified Mailing Address

University of California
Los Alamos National Laboratory
Post Office Box 0
Mercury, Nevada 89023

Classified Shipping Address

University of California
Los Alamos National Laboratory
CP-100 Warehouse, Area 6
Attn: Anna M. Ruth
For: (Intended Recipient)
Mercury, Nevada 89023

Classified Mailing Address

University of California
Los Alamos National Laboratory
Post Office Box 0, Building 600
Mercury, Nevada 89023
(Inner Envelope: Recipient's Name, Group, Mail Stop)

HAZARDOUS MATERIALS

Hazardous Materials Notification System

All hazardous materials entering, leaving and transferring within the NTS must be entered in the Hazardous Materials Notification System (HAZTRAK). Please forward to CP-100 LANL Warehouse, **FAX 702-295-3466**, a copy of shipping papers, emergency response information, drivers name and operators license number, power unit license number, motor carriers name and estimated time of arrival/on-site movement. The LANL Warehouse, CP-100, (**702-295-3710**) is to be notified in advance of all hazardous material freight or drop shipments to NTS.

RADIOACTIVE MATERIALS

Radioactive Material Shipments

All inbound, outbound and intra-facility radioactive shipments are controlled and cleared by Radioactive Material Control Department (RAMATROL) at NTS. The LANL Warehouse, CP-100, must notify RAMATROL at **295-7090**, prior to material shipment/movement and prepare NTS specific required documentation and HAZTRAK notification prior to material movement.

The LANL Warehouse, CP-100, must be given advance notification of packages containing radioactive material that are to be shipped to NTS. For packages containing more than a Type A quantity of radioactive material, arrangements must be made to either take possession of package when the carrier offers it for delivery or arrangements must be made with the carrier to take

possession of package expeditiously at carrier's terminal after receiving notification of its arrival.

External surfaces of packages labeled with a Radioactive White I, Yellow II or Yellow III label; packages transported as low specific activity material on an exclusive use vehicle and packages that show evidence of degradation shall be monitored by RAMATROL as soon as practicable following receipt but no later than 8 hours after the beginning of the work day following receipt of the package.

Off-site radioactive material shipments require prior notification and authorization from receiving facility. Authorization numbers for radioactive material shipments to LANL are issued by Group S-4, Material Control and Accountability, **505-667-9968.** DOE/NV Safeguards and Security Division, **702-295-0082**, must be notified when shipping NM/SNM from NTS. DOE/NV will issue an authorization number (741).

EXPLOSIVE MATERIAL SHIPMENTS

Shippers of explosives to NTS must coordinate with the LANL Warehouse at, **702-295-3710**, prior to delivery date. All inbound Class 1 material transporters must use the explosives material turnout area located approximately 1 mile south of Gate 100 and declare their intent to deliver Class 1 materials to the NTS. Division 1.1, 1.2 and 1.3 materials are **not allowed** in Mercury. The Mercury Bypass Road must be used as the designated route.

Air

The LANL Warehouse has transportation resources available to facilitate premium service when authorized through the TO. Although services such as Federal Express will be provided, the most economical means are always preferred. Packages must be delivered to the LANL Warehouse, CP-100, before 1:00 p.m. to be shipped out that day.

Ground

Large-scale shipments are coordinated between BUS-4, Materials Management Group, and the LANL Warehouse at NTS to maximize available space for shipments.

All shipments of fissionable material leaving the NTS must be in the original configuration or in a configuration approved by the BUS-4, Materials Management Group.

REFERENCES

1. DAF Technical Operating Procedures, Shipping & Receiving, DAF-PRC-T0-14.
2. DOE Explosives Safety Manual, DOE M 440.1-1.
3. DOE/NV Handbook for On-Site Transportation Safety at NTS.
4. DOE Order, DOE 0 460.1A.
5. DOE Order, DOE G 460.2-1.
6. Environment, Safety, and Health (ES&H) Manual, AR 1-4.
7. Integrated Safety Management, LPR 300-00-00.0.
8 Joint-Labs MC&A Procedures.
9. LANL Radiological Control Manual, LM 107-01.1.
10. Nuclear Safety Guide, TID 7016.
11. NTS Hazardous Material On-Site Transportation Manual, DOE/NV 356.
12. NV/YMP Radiological Control Manual, DOE/NV 11718-079.
13. Packaging & Transportation, LPR 405-00-00.0.

14. Packaging & Transportation, LPR 405-10-01.0.

15. Packaging & Transportation Program Plan, P&T QAP 002-00.0.

16. Property Management Manual.

17. Compliance with Implementation and Operation of the Materials Modification System (HAZTRAK)